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I. GENERAL INFORMATION

FALSIFYING FIGURES IN AGRICULTURAL STATISTICS MUST BE OVERCOME

Beijing GUANGMING RIBAO in Chinese 20 Mar 80 p 2

[Text] Seeking truth from facts and reporting the situation accurately represent a glorious tradition of our party and a rule that should be followed by the cadres of every country. Due to protracted interference and sabotage by Lin Biao and the "gang of four," however, many regions have resorted to deception by falsifying figures of agricultural production statistics and high-yielding model farms; such falsifications have not been thoroughly rectified up till now. At present agricultural production statistics reported by certain units to their superiors are not the true figures accumulated from basic levels but numbers fabricated by the leaders concerned, particularly those concerning grain production.

The causes, forms and methods of misrepresenting figures are legion. Some units fear that the more they produce, the more they are required to purchase the production output; others falsify the production figures wilfully and divide the spoils among themselves, so they underreport the total production, a situation still occurring in many grassroots levels. Still others deliberately inflate production figures in order to acquire glory or to retain their past glorious reputation, a situation prevalent in county levels a few years ago. Some units report less during a fruitful year and report more during a lean year, thereby maintaining their glorious reputation of "continuous increase in production year after year." Some provinces, regions and counties are skeptical of the statistics submitted by the lower levels or, to facilitate their own work, reserve a portion of mobile grain in their hands and underreport the total production to their respective superiors.

As to area of arable land and the practice of falsifying figures of unit production, these have been going on rampantly for a relatively long time. From liberation up till now, all regions have used the volume of unit production as an important yardstick to measure production level and reward model laborers as well as commend outstanding units. Many basic level units, besides adopting scientific farming and intensive cultivation to increase their unit production, often resort to misrepresenting unit production by underreporting the area of arable land in their possession. The practice of underreporting areas of arable land was already serious as early as 1958. At that time, many production teams, taking advantage of a revision in agricultural system of rules, failed to report to their superiors the size of their arable

land by scores of mu. According to Hunan provincial statistics, during a 3-year period from 1958 to 1960, the arable land decreased by more than 4 million mu, as compared with the 1957 figure. Apart from a portion of the land which was used for road and irrigation construction and distribution to commune workers as private plots, the other major portion was underreported by basic level units.

All regions have continuously been using these misleading land area figures up till now. Subsequently, the so-called "five regulation area" and "straddling outline area" have always been based on this underreported land area of 1960. Later on, increase in land area by covering up lakes and reclaiming land as well as leveling off arable land was not reported, while the arable land requisitioned by the government for road and irrigation construction or governmental factories was reported, thereby causing a situation of the gradual reduction of arable land being reported annually.

As a consequence of various reasons mentioned above, the arable land found in a basic level unit today is recorded in two sets of figures: one is the figure to be reported to the superiors, while the other is the internally-held figure for the purpose of assigning jobs, recording work points and arranging production. The latter figure is nearer to fact and may be described as the "actual figure." In some basic level units, the actual area is often 10 to 20 percent higher than the figure reported to the higher-ups. With this surplus arable land, they can afford to inflate the unit production figures of certain crops, particularly grain. That is why there is so much chaos in statistical figures.

Some regional leaders use model workers and high-yield model farms as their trump card to seek credit for themselves. They do not permit other people to carefully check on their labor heroes and abundant harvest farms. Instead, they ask certain people to fix a production volume which is much higher than the actual unit production for publication purposes, and they even misrepresent the cultivation policies for labor heroes and abundant harvest farms. The evil results of falsifying reports are very serious. A few years ago, some counties falsified the total grain production, which caused the masses in decrease-in-output areas to sell their "overhead grain" or to miss government aid, which in turn caused them to suffer in their lives and even move out elsewhere. In some regions, model workers who used to perform well no longer enjoy the trust of the masses due to the falsification of production volumes and policies.

Departments of the central government concerned should adopt effective measures and, within a 3-year period of adjustment, reverse the chaotic situation in our country's agricultural statistics, give expression to a relatively objective true state of affairs and serve better our agricultural modernization. Therefore, we workers in science and technology propose that the central government make all regional leading organizations of all levels understand the major significance of reporting statistics accurately, and that statistical figures reported by all levels to their superiors should be solely based on the accumulated figures collected by basic levels, but not on subjective groundless conclusion by reducing or adding figures at will. We

request that all basic levels accurately report their arable land and grain production, and we oppose the bad work style of resorting to deceit. Those who practice falsification and exaggeration should be investigated and, if found guilty, meted out fitting criticism and penalties.

Furthermore, the target for requisitioning agricultural produce in various regions must be relatively consistent. Fruitful regions should buy only by way of high price and reward, but not by rigidly increasing purchasing targets to the lower levels. In rewarding, commending and publicizing outstanding production models, we must firmly seek truth from facts. The production volume and surface area of a model unit and model farm must be meticulously and personally verified, measured, summed up, reported in writing and duly signed by an agricultural administration and research department of more than two levels found locally, before the production volume and experience can be published openly. If, during the investigation, some fabrication was discovered, the verifiers may refuse their verification task. Also, agricultural departments must devise a uniform system of verification and method for calculating the surface area production volume of intercropping so that all regions may have a regulation to abide by.

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USE OF AGRICULTURAL AID FUNDS DISCUSSED

HK161032 Beijing JINGJI YANJIU in Chinese No 2, 20 Feb 80 pp 12-18

[Article by Ge Zhida [5268 5268 6671]: "More Efficient Use of Fiscal Agricultural Aid Funds"]

[Text] The Fourth Plenary Session of the 11th Central Committee of the party adopted and promulgated the "resolutions of the Central Committee of the Chinese Communist Party on certain issues concerning the acceleration of agricultural development." This is a programmatic document concerning the modernization of our country's agriculture. An important problem which needs to be studied and solved urgently is how the financial departments are going to implement the gist of this document, strengthen the financial aid to agriculture, raise more funds for accelerating agricultural development and use the funds more efficiently. This article is to present some views on the more efficient use of fiscal agricultural aid funds.

I. The Significance and Role of Fiscal Aid in Agricultural Development

Our country has entered a new stage of carrying out the four modernizations in a planned way. The first campaign is to conscientiously readjust, restructure, rectify and improve the national economy over a 3-year period, and to radically alter the serious disproportion in the national economy caused by the prolonged interference and sabotage of Lin Biao and the "gang of four." Agriculture is the foundation of the national economy. A high rate of agricultural development is of great strategic importance to readjusting the national economy well and achieving the four modernizations. It also plays a conspicuous role in securing fiscal revenue and accumulating funds for the four modernizations. Experiences over many years have proved that good harvests in agriculture will bring about stability in the people's livelihood, a smooth development in the national economy and good fiscal revenue. If harvests are poor, industry will not go ahead and revenue will inevitably be affected. For example, during the 3-year period of hardships in the early 1960's industrial output and fiscal revenue dropped drastically because of the disproportion in the national economy and the grave sabotage inflicted on agriculture. Compared to 1958, grain production in 1962 decreased by 20 percent, industrial

output by 22 percent and fiscal revenue by 29 percent. Later on, the guiding principle of "readjustment, consolidation, strengthening and improving" formulated by the party Central Committee was conscientiously implemented. Agricultural production was given top priority. It was emphasized that all trades and industries had to support agriculture staunchly. Therefore, the development of agricultural production was restored very quickly and the entire national economy also recovered and developed. Compared to 1962 grain production in 1965 increased by 21.6 percent, industrial output by 64 percent and fiscal revenue by 51 percent.

In addition, increasing fiscal aid is of great significance to and exerts a considerable effect on agricultural development. Since the founding of the People's Republic, the policies, funds and work of the financial departments at all levels have supported agriculture in many ways, in accordance with the guiding principle of taking agriculture as the foundation, which was put forward by the party Central Committee and Comrade Mao Zedong. In 1978 the state's fiscal agricultural aid appropriations were 12 times more than in 1952. In 1952 the fiscal agricultural aid funds were 5 percent of the state's total expenditure. In 1978 the figure rose to 12.7 percent. This increase played an active role in helping the communes and production teams improve production conditions and become more capable of fighting natural calamities. It played an active role in the development of the state-owned agricultural and animal husbandry enterprises and in raising the level of agricultural modernization. The specific facts are as follows.

1. The communes and production brigades were assisted to launch large-scale capital construction of their farmland and increase the ability to fight natural calamities. Since the founding of the People's Republic the state's expenditure for this purpose has reached nearly 60 billion yuan. The broad masses of commune members have struggled hard to transform nature with the state's support. They have built over 84,500 reservoirs among which 2,516 are large and medium-sized ones as well as over 5,200 irrigation canals each serving an area of over 10,000 mu. The electric pump well, numbering more than 2.55 million, have helped increase the effectively irrigated area from 290 million mu in 1952 to 70 million mu [as printed] at present, of which 350 million mu can give high or stable yields even in times of droughts or excessive rains. Of the 330 million mu of land which is vulnerable to waterlogging, 250 million mu have been improved. Of the over 400 million mu of sloping farmland more than 10 million mu have been terraced. Thus, the conditions for agricultural production have been improved. Therefore in 1978, despite the serious droughts, our country was still able to obtain better harvests than the previous year.

2. Poor communes and production brigades were assisted in transforming themselves and developing production. From 1959 to the end of 1978 the state invested over 12 billion yuan in aiding the people's communes. It effectively supported the development of agricultural mechanization, enterprises run by communes and production brigades as well as small hydroelectric

plants. There are now 550,000 large and medium-sized tractors and 1,373,000 hand-operated ones in the whole country. The area plowed by tractors increased from 2 million mu in 1952 to 610 million mu in 1978. The enterprises run by communes and production brigades developed rather quickly out of nothing. In 1978 there were 1,520,000 such enterprises in the whole country, whose output value totaled 49.1 billion yuan, which was 9.9 billion yuan more than the previous year. Their profits were 8.8 billion yuan, which increased the ability of the communes and production brigades to accumulate funds. In the countryside the small-scale hydroelectric equipment generated a power of 5.30 million kilowatts. As the agricultural economy developed our country's poor production brigades decreased from 42 percent of all brigades in 1965 to 16.4 percent in 1978.

3. The construction of bases of grain production, forestry, fishery and animal husbandry was supported. To change the fact that "food from the south must be sent to the north," during the Third Five-Year Plan period the key places for the allocation of the state's agricultural aid funds were Shanxi, Hebei, Shandong and Henan, whose problems of aridity and low yield were to be solved. In 1970 these provinces became basically self-sufficient in grain and in 1972 they even supplied 800 million jin of grain to the state. In the past 2 years the state has used new funds for irrigation works and sinking wells in key places like Heilongjiang, Jilin and Nei Monggol where relatively more grain and animal husbandry are produced. In the case of forestry the key work has been the aiding of 212 counties to develop economic forests like timberland, fir forests and oil-bearing woody plants. In the whole country tea oil, olive, tung oil and Chinese tallow trees have been planted on early 100 million mu of land. In the case of fishery an area of 175,000 mu for breeding fresh water fish has been built or is being built in Hunan, Hubei, Jiangsu and Hebei in 1978. At present these provinces supply one-fifth of the whole country's fresh water fish. In the case of animal husbandry, in the past 2 years over 100 million yuan has been allocated for digging wells. In addition, the state has supported the capital construction of pastures in pastoral areas, the building of storehouses for grass, the improvement of animal breeding and the building of high and stable yield bases in the animal husbandry industry.

4. The development of state-run agricultural and animal husbandry enterprises is assisted, and the superiority and exemplary role of the system of ownership by the whole people is brought into play. Since the founding of the People's Republic the state has supported the development of agricultural and animal husbandry enterprises by appropriating 16 billion yuan of capital construction funds, circulating capital funds, operating expenditures, and so on. At present there are over 2,900 state-owned agricultural and livestock farms with a 5-million strong staff and 70 million mu of cultivated land, orchards, mulberry and tea farms, which constitute 4 percent of the whole country's cultivated area. The state-owned farms have supplied a great deal of grain, agricultural and sideline products and dried rubber to the state. They have supplied a great deal of good

varieties of seeds and good livestock. They have accommodated and trained many school leavers from urban areas. They have played an exemplary role for the communes and production brigades in the countryside. They have contributed to the prosperity and defense of the border areas and the strengthening of the nationalities' unity.

By the end of 1978 the total value of our country's agricultural output had doubled compared with the initial period after the founding of the People's Republic. Cotton had increased 3.9 times, oil-bearing crops by 96 percent, and live pigs in stock 4.2 times. The livelihood of the broad masses of peasants had improved rather substantially compared with the preliberation period. A fairly good material foundation had been laid for our country's agricultural modernization. These were the fruits of the arduous struggles of hundreds of millions of peasants and the vast numbers of cadres under party partnership. They could not have been achieved without state funds, either.

11. Problems of the Allocation and Use of Fiscal Agricultural Aid Funds

Our country has achieved many successes in agricultural production in the past 3 decades since the founding of the People's Republic, but we have taken a tortuous path. There are still many problems in the allocation of agricultural aid funds and their role in promoting agricultural production. The major ones are as follows:

1. Agriculture has developed slowly and disproportions exist in the relationship between agriculture, light industry and heavy industry. Over a number of years agriculture sometimes developed fast but sometimes slowly, and the state's aid funds were sometimes used efficiently but sometimes not. During the period of the national economy's recovery and in the First Five-Year Plan period agriculture developed relatively fast. During those 8 years the increase in the whole country's grain production averaged 7 percent a year. Correspondingly, the proportion of agricultural aid funds in the fiscal expenditures rose from 5.1 percent in 1949 to 8.1 percent in 1957. From 1958 onward agricultural output dropped year after year due to mistakes in the "practice of communism," "excessive state purchases" and "giving blind direction." In 1962 the party Central Committee put forward the guiding principle of "readjustment, consolidation, strengthening and improving" and formulated the "60 regulations" regarding the rural people's communes. In 1963 and 1964 the state increased the fiscal agricultural aid funds, which rose 16 to 18 percent of all fiscal expenditures. It realized the principles of taking agriculture as the foundation of the national economy and observing the order of priority of agriculture, light industry and heavy industry. Therefore, agriculture was restored and developed relatively fast. In the past decade despite increases in the absolute amounts of agricultural aid funds, these funds have been around 10 percent of the fiscal expenditures. Disproportions have existed in the relationships between agriculture, light industry and heavy industry. Furthermore, many local agricultural financial organs were abolished. The fiscal agricultural aid work has been relaxed and no one cares about the efficiency of funds utilization. This contributes to the slow increase in and low

level of grain production. In 1978 the national average grain output per mu was 337 jin. The annual per capita grain output of the agricultural labor force was only 1,899 jin. In the whole country every person on the average had 636 jin of grain, 4.5 jin of cotton and 3.5 jin of edible oil. For 20 years these last three figures had not exceeded the 1957 level.

Very often among various agricultural occupations only grain production has been emphasized and cash crops have been neglected. Agriculture has been given close attention while forestry, animal husbandry, sideline occupations and fishery have been neglected. The allocation of funds has followed a similar pattern. Only aiding grain production has been emphasized and the comprehensive development of other occupations has been displaced. In some cases even the meager sums of money allocated to these occupations was diverted to "guarantee grain production." Nevertheless, because the relationships between various agricultural occupations have not been well handled, and so on, grain production developed slowly and the output of certain cash crops even dropped. Our country's cotton output fluctuated for 11 years and by 1978 it was still only 43 million dan or so, which was even less than the 1966 figure of 46.70 million dan. The output of oil crops (namely peanuts, sesame and rapeseed) in 1978 was 91.30 million dan, which did not significantly surpass the 1956 figure of 91.18 million dan.

The development of different localities has not been well balanced. Some localities got smaller increments in aid funds from the state, they used the funds efficiently and their grain production increased quickly. Some other localities received more aid funds but their efficiency was poor and grain production increased slowly. In the whole country, between 1965 and 1976 the funds for aiding the rural people's communes and the funds for subsidizing small-scale irrigation works increased by 275 percent. In the same period total grain output increased by 46 percent. Regionwise, Hebei, Henan, Shandong and Jiangsu received 1.5 to 2 times more funds from the state than initially and their grain output grew by 50 to 80 percent. On the other hand, Sichuan, Yunnan, Guizhou and Gansu got 4.5 to 8.8 times more funds from the state several years ago but their grain production merely grew by 16 to 35 percent. This anomalous phenomenon is partly attributable to the sabotage by the line of Lin Biao and the "gang of four," but apart from this if we examine our work the major reason is spending money without caring about efficiency and having no cost consciousness in growing crops. Some localities think that to increase output they have to buy more machinery and use more fertilizers. As a result some localities with a dry climate have bought many tractors but let them lie idle. Some presently use 100 jin of fertilizers per mu but pay no attention to other conditions and scientific farming methods, and consequently the yields are even worse than several years ago when 30 jin of fertilizers were used on every mu.

2. The agricultural aid funds are allocated evenly without focal points, so that the due effects have not been achieved. The investment funds for aiding rural people's communes are a special item the state sets aside for

transforming poor communes and production brigades. From 1959 to 1978 over 12 billion yuan had been drawn to this item for the whole country. This was not a small sum but poor production brigades were not greatly transformed and their number did not diminish greatly. The allocation and use of the funds is one thing to blame. Before 1966 the party Central Committee had stipulated that the majority of the funds were for the poor production brigades to expand production and the minority were for the communes to develop industry. After 1967 the key use of these funds has been to mechanize agriculture. Most subsidies have gone to communes, production brigades and better off production brigades. The really poor production brigades have been unable to afford to buy machinery. Some have bought it but cannot afford to use, maintain or repair it. Thus the poor production brigades have not gained much. In some localities substantial portions of these funds have been embezzled and not put to use in the communes or production brigades. Although some localities do support the poor production teams to a certain extent, there have been no plans to transform them in stages and group by group. The funds have been distributed evenly without focal points. It is like spraying pepper powder on a wide surface. Consequently, the efficiency is very poor.

Another major cause of inefficiency in using investment funds is that irrigation works projects are started blindly without regard to practical feasibility. The fronts are too extensive. A study has revealed that in Heilongjiang the effectively irrigated area is only 30 percent of the planned irrigated area. For the whole country, among irrigated districts of 10,000 mu or more, there are still over 100 million mu where the irrigation works as well as over 400,000 pump wells have not been fully integrated. For a long time they have been unable to function properly. A few years ago some irrigation projects were marked by "policies changing as the party committee secretary was transferred, and land dug up in one year might be filled up in the next," which was a waste of labor. Some projects were magnificent but not practical, becoming a formality and something to brag about. Some projects were built without observing technical rules, without surveying and designing and without caring about work quality, and they have brought about grave damage to the state as well as the people's lives and property. Among the 79,000 small reservoirs in the whole country 31,000 of them are faulty or dangerous.

The manufacture of agricultural machinery is also marked by a tendency to go for quantity at the expense of quality. As a result though the state subsidizes the communes and production brigades and though they do not thus pay a smaller share themselves, many items of agricultural machinery they have purchased are lying idle because of defects. In 1978 when Henan Province was fighting drought intensely, 35 percent of the agricultural diesel engines would not work and lay idle, 40 percent were working but defective and only 25 percent were in good condition. According to statistics compiled by the departments concerned the whole country's agricultural machinery is heavily overstocked due to low quality, high prices and poor sales. The stock at the end of the year was 55 percent more in 1978 than in 1975. In 1978 about one-fourth of the stock became useless because of prolonged stocking or inferior quality.

3. The state farms suffer from low grain output and great losses. Since the founding of the People's Republic the state has allocated vast sums of capital construction funds, circulating capital and operating expenses to the state farms. Although production expanded greatly and fairly good successes have been recorded, the management is rather poor and many problems exist. The major one is low grain output and great losses. In 1978 the average grain yield per mu was 337 jin for the whole country but merely 240 jin for the state farms. These in Nei Monggol attained only 100 jin. Some farms mainly produce grain, but they are not self-sufficient in grain and even have to consume the state's supply of grain. In more than 2 decades the state has paid out 6 to 7 billion yuan to make up for the farms' losses. The biggest loss was over 1 billion yuan in 1966. Since the crushing of the "gang of four" things have taken a favorable turn. In 1978 losses were reduced to 260 million yuan. Nevertheless, 1,700 farms, or 60 percent of the country's total, were still sustaining losses then. In 1979 they benefited from good harvests and higher agricultural product prices and the budgeted profits increased and losses diminished. But 45 percent of all the country's farms are still suffering losses.

4. Financial discipline is lax and financial management is weak. At present the management of agricultural aid funds is very disorderly in many localities. For example, some treat the state's funds for aiding the collective economy of the communes and production brigades as "reserve funds for extras," "multipurpose funds," and a "gratifying bonus people compete for," some funds which the "will of the superior officials" may divert at random to the capital construction of state-owned enterprises or business, or for other nonproductive purposes. In the past few years some provinces and autonomous regions have used over 100 million yuan (which amounts to 4.5 percent of their annual target expenditures), originally earmarked for aiding the people's communes, to build state-run tractor factories and agricultural machinery factories. Some irrigation works departments, agricultural departments and agricultural machinery departments abuse their power and embezzle agricultural aid funds under their own care to build offices and dormitories. Some deliberately misappropriate such funds for paying bonuses or even for giving banquets and presents. They squander the money and practice corruption and stealing. According to rough statistical data gathered from various localities, in the past 3 years around 10 percent of the state's funds for aiding communes and production brigades, amounting to nearly 1 billion yuan, has been misappropriated, embezzled, squandered or even used for corrupt practices.

III. Increase the State's Aids to Agriculture and Use the Funds More Efficiently

The third plenary session of the 11th Party Central Committee pointed out that in the past the main problem concerning agricultural funds was: "state aid was inadequate and not fully effective." If this problem is to be conscientiously studied and solved, the guiding principle of "readjustment,

restructuring, rectifying and improving" must be implemented resolutely. The proportion that agricultural funds occupy in the state's budgetary expenditures must be readjusted. Agricultural financial systems that are incompatible with the development of agricultural production must be actively restructured. The financial management of state enterprises and undertakings and of enterprises run by communes and production brigades must continue to be rectified. The management standard of fiscal and financial work must be improved.

1. We must persist in implementing the guiding ideology of taking agriculture as the foundation. When national economic plans and budgets are drawn up, the order of priority of agriculture, light industry and heavy industry must be strictly observed. "The resolutions of the Central Committee of the Chinese Communist Party on certain issues concerning the acceleration of agricultural development" point out that currently our most important task is to combine our efforts to enable agriculture, which is still very backward, to develop as quickly as possible. Accelerating agricultural development is the basic prerequisite for realizing the four modernizations. For a long time in the past we followed the order of priority of heavy industry, light industry and agriculture when we planned the order of priority for our national economic investments. We over-emphasized heavy industry and neglected agriculture and light industry. In the past 2 years, although the state has invested slightly more funds in agriculture the order of priority of heavy industry, light industry and agriculture has still not been completely reversed. Although many people verbally admit the importance of agriculture, in practice they have not really put it in an important position. The resolutions of the Central Committee of the party on accelerating agricultural development point out: "We must resolutely implement the guiding principle of taking agriculture as the foundation. The Central Committee, the State Council and the ministries and commissions in charge of economic work must pay special attention to guarantee the implementation of this guiding principle. When national economic plans are drawn up the order of priority of agriculture, light industry and heavy industry must really be observed to insure the balance between agriculture and industry. When planning the development of various items of building enterprises, the capabilities of agriculture to bear the burdens need prime consideration." The Ministry of Finance is a department responsible for the comprehensive distribution of funds. When it plans budgets it must conscientiously implement the principle in the Central Committee's instructions. It must readjust the disproportionate relationships between agriculture, light industry and heavy industry, and effect corresponding changes in the allocation of agricultural aid funds to promote proportionate development within agriculture itself.

Our country has a large population, little cultivated land, a weak foundation but an abundant labor force and natural resources. Under such conditions, an acute contradiction in our attempt to achieve agricultural modernization is the availability of the vast amounts of funds needed. Based on the estimates for certain typical counties several hundred billion to a trillion yuan are needed for agricultural modernization. How can

these huge funds be obtained? We cannot await foreign aid or rely on loans. Even if we exploit foreign capital we must use our own accumulation to repay the principal and interests. Our country's practice proves that the problem can only be solved by the state and the collective. For its part the state must further increase its agricultural aid funds, which include financial investment, various items of appropriations, agricultural tax concessions, bank loans for agriculture and so on. The party and government have resolved to gradually raise the proportion that agricultural aid funds occupy in the budgetary expenditures, so as to accelerate agricultural development and guarantee the realization of agricultural modernization. The proportion of agricultural investments in the state's financial budget rose from 10.7 percent in 1978 to 14 percent in 1979. This added to other items of agricultural funds amounted to 17.4 billion yuan. In the coming few years the state's agricultural capital construction investments will gradually increase to around 18 percent of the total investments as production develops and accumulation increases. Various items of operating expenditures will also gradually rise to around 8 percent of budgetary expenditure. The localities' financial reserves will also be largely used for aiding agriculture and agricultural aid industries. Even so the funds that the state can provide are limited and are much less than the demand for funds. Therefore, we must continue to implement the guiding principle of "relying mainly on oneself and taking state aids as something subsidiary." We must make great efforts to support the development of the collective economy and improve the ability of the communes and production brigades to raise their own funds. This should be the main method of securing agricultural modernization funds. Our country has a rural population of 800 million people and an agricultural labor force of 300 million people. Coupled with making correct general and specific policies, arousing the enthusiasm of the broad masses of peasants, carrying forward the spirit of self-reliance and vigorous struggle, exploiting local resources, carrying out more varieties of business, developing enterprises owned by communes and production brigades, improving management and lowering production costs, funds can then be accumulated relatively fast. At present there are a number of advanced models in various parts of the country, like Wuming in Guangxi, Jiaonan in Shandong, Gaixian in Liaoning, Youxian in Hunan and Yingshan in Hubei. They raise over 70 percent of their agricultural development funds through the efforts of their own communes and production brigades.

Financial departments must give the necessary support and assistance to the development of enterprises run by communes and production teams and the participation in more varieties of business. Low tax or tax free policies should continue to be carried out in agricultural sector and the enterprises run by communes and production brigades. Funds for aiding the people's communes should be allocated and used rationally. In addition, the functional role of finance should be brought into play in a wide scale. Communes and production teams should be helped to master cost reducing financial management methods. The departments concerned as well as enterprises run by communes and production teams should be enthusiastically assisted to establish sound financial and accounting systems. They should

strengthen economic accounting, lower production costs, raise labor productivity and the level of accumulation, and use the enterprises' accumulation largely for developing agricultural production and the enterprises' expanded reproduction. At present the financial departments should pay special attention to the financial affairs of the communes and those of the enterprises run by communes and production brigades. They should also take care to survey and analyze the financial affairs and costs of typical production brigades and then report their findings to leading cadres of the party and government and to the departments concerned. They should suggest ways of helping the production teams improve their management and increase their output, income and accumulation.

2. The allocation of agricultural aid funds must be focused on certain key localities and tasks to achieve marked results. "The resolutions of the Central Committee of the Chinese Communist Party on certain issues concerning the acceleration of agricultural development" point out: "To achieve the modernization of agriculture, the policy of concentrating our efforts to achieve breakthroughs at certain points must be implemented. Localities must be transformed and their problems solved one by one, not all at once. That is, advance wave upon wave and do not start everything all at once like sprinkling pepper over a large surface area." Financial departments must steadfastly stick to this plan when they aid agriculture. Key localities and tasks must be emphasized and close attention must be paid to two aspects. One aspect is supporting the building of grain, cash crops, animal husbandry, fishery and forestry bases, promoting great increases in the output of grain, cotton, oil crops, meats and other agricultural and sideline products, and promoting the proportion of such products set aside as commodities. Then the needs pertinent to the four modernizations and the need to improve continuously the livelihood of the urban and rural people can be satisfied. The other aspect is to support the poverty-stricken regions, including old revolutionary bases, remote mountainous regions, minority nationality regions, border areas and certain regions suffering from protracted low outputs and grain shortages. Such regions must be assisted to restore and develop production, lift themselves out of poverty as soon as possible, gradually attain self-sufficiency in grain and provide more forestry, animal husbandry and other products to the state.

Aid in these two aspects includes assistance in the localities' work and financial assistance. Different bases with different conditions should be assisted in different ways. Bases with better natural and financial resources, which gain considerably from the increase in the state purchase price of agricultural and sideline products, should be assisted mainly in their work. Emphasis should be placed on helping them to do a good job of financial and funds management, launch campaigns to increase output and practice thrift, tap potentials, expand accumulation, continue to struggle hard and rely on their own efforts to maintain and raise the production level. The basic assistance to those bases with poor production and financial conditions but high potential for output growth should consist of assisting them in their work, and in addition financial

assistance may be given if necessary. For example, in Jilin Province the eight counties which are grain bases, Yushu [2810 2885] being one of them, should be helped to basically achieve mechanization and helped to advance a step forward in the capital construction of farmland, in building small-scale irrigation projects and raising the level of science and technology. They should be helped to solve certain key problems in the development of production and to tap production potentials. On the other hand the poverty-stricken regions are poorly endowed with natural resources and have weak foundations. Some of them cannot even maintain simple reproduction. They gain little from the increase in the state purchase price of agricultural products. The financial departments must give them more assistance in their work and more funds. They must be helped to conscientiously implement the guiding policy of combining agriculture, forestry and animal husbandry. They must be helped to quickly alter the tendency to concentrate on developing grain and neglect forestry and animal husbandry. They must be helped to overcome poverty through sustained efforts.

Aiding agriculture to accelerate its development must observe natural and economic laws. On a nationwide scale the guiding principle of "taking grain as the key link, developing comprehensively, adapting measures to local conditions and focusing efforts appropriately" must be completely implemented. The focus of assistance must be worked out for localities as specific as a province, a district or even a county. Assistance must proceed from reality and must suit local conditions. It should be given mainly to one of the following: farming, animal husbandry, forestry or fishery; depending on which one is appropriate for a locality. This is to help each locality achieve comprehensive development with specialization in one main occupation. The aid items must be specially designed to help solve key problems affecting output growth. Whatever the assistance is, attention must be paid to objective feasibility. The comprehensive equilibrium of human, material and financial resources must be maintained. Assistance must be given in a planned way, given in stages and given to one group of localities at a time. Efforts must be concentrated so that the limited funds can be used for the most important purposes.

3. The financial management of state-run agricultural enterprises and undertakings must be restructured. The enthusiasm of productive units must be aroused.

The state-run agricultural enterprises are an important force in agricultural modernization. The financial departments must make great efforts to assist them to develop production at a high speed and play a full and exemplary role. Before 1985 the method of assuming financial responsibility for the whole task should be adopted on a wider scale in financial management. The details of the method are as follows. The state-run agricultural and livestock farms and combined agricultural-industrial-commercial enterprises will generally adopt the method of "independent accounting, assuming sole responsibilities for profits and losses, retaining their own profits and no subsidies for losses." Rubber plantations, industrial enterprises directly accountable to agricultural departments, supply and marketing enterprises as well as a minority of state-run

agricultural and livestock farms which enjoy high profits can practice the method of "assuming responsibility for delivering products to the state with the quotas revised yearly, retaining surpluses and no subsidies for insufficient incomes." The state-run agricultural and livestock enterprises are required to turn their losses into profits or increase their profits within this year and the next, and to supply more grain and other commodities to the state. The exception is that a minority of state farms and state livestock farms (including newly built ones), which are poorly endowed with natural resources and are still suffering from losses for the time being, may be assisted for 1 or 2 years depending on their circumstances. The enterprises should be able to meet this requirement. In the past, state-run agricultural and livestock enterprises did not suffer losses all the time. Between 1950 and 1960 there were basically no losses. After 1961 losses were sustained due to natural calamities and the relaxation of financial management over a certain period of time. After 1965 balance in the incomes and expenditures was achieved as a result of rectification. In 1966 the enterprises even handed over profits to the state. Agricultural and reclamation enterprises suffered great losses after 1967. In the past 2 years special attention has been paid to turn losses into profits and to increase profits, and in particular the method of assuming financial responsibility for the whole task has been practiced, so the situation has taken a favorable turn. Practice has proved that by strengthening management alone it is absolutely possible for agricultural and livestock enterprises to earn profits. In addition, those enterprises with suitable conditions should be assisted to set up experimental enterprises which combine agriculture, industry and commerce. Financial management problems in these experimental enterprises must be investigated and studied and experience gained. The method of assuming financial responsibility for the whole task is favorable to mobilizing the enthusiasm of various parties. The results of its trial implementation are good. In the future this method can be tried on overseas Chinese farms, aquatic products breeding farms and reform-through-labor farms.

Those agricultural enterprises practicing the method of assuming financial responsibility for the whole task must stick to the principle of "accumulation before spending." A large portion of the surpluses should be set aside as production development funds for developing technological measures and so on. A portion should be used as staff reward funds for collective welfare and reward payments. Another portion should be used as reserve funds to make up for losses in lean years. The financial departments in various localities must respect the enterprises' power to decide for themselves how to use the surpluses. Simultaneously, they must provide the necessary guidance and assistance.

The institutions under various agricultural departments were set up to serve the development of agricultural production. The financial departments should give them more assistance in their production and work. They should focus their efforts on promoting the following: scientific research, breeding good varieties of seeds, surveying natural resources, general investigation of soil, and so forth. Some institutions are engaged

in production and have sources of income. In the past the financial management of these institutions was an excessively collectivist practice. Their losses were made up for by state subsidies. The result was that the state's burden became heavier as the number of institutions grew. Actually these institutions possess very great potential. They must be actively assisted to tap their potential and change the practice of "begging for rice with golden bowls in their hands." Different modes of assistance should be adopted under different circumstances. There are various methods of assuming financial responsibility for the whole task, which pose different requirements. One method is along the lines of "managing enterprises, independent accounting, retaining profits, no subsidies for losses." This method can generally be applied to productive institutions with regular incomes such as the following: the "3 categories" of farms in agriculture and animal husbandry (good [original] varieties of seed breeding farms; stock [poultry and bees] breeding farms; silkworm, mulberry, tea, orchard, medicinal herb and horticultural specialty farms) fish breeding farms, control stations for areas irrigated by reservoirs, irrigation stations, tractor stations, and so forth. Another method is "setting fixed income and expenditure figures. The difference is compensated for. Surpluses in the income are retained. Deficits in the expenditure are not compensated for." This method can generally be applied to low income institutions [word indistinct] breeding stations and veterinary stations. A third method is "accepting a quota for the staff size and assuming responsibility for the whole task with a given sum of funds." This method can be applied to institutions which have basically no income like agricultural scientific research units, intermediate professional schools, technology popularization stations and meteorological stations. These methods will help mobilize the enthusiasm of the leading cadres and staff of the institutions to assume responsibility, manage their own financial affairs and improve their management. Facts have proven that the methods are effective. For example, in Hubei the method of assuming financial responsibility for the whole task has been tried on the "3 categories" of farms. They have also been actively assisted to rely on their own strength and develop more varieties of occupations. Consequently, they turned their losses of over 6 million yuan in 1969 into a profit of over 2 million yuan in 1978. This is a very good piece of evidence.

IV. Raise the Financial Management Standard

Financial management is a science. The financial departments must gradually learn to use economic methods to manage the economy. They must actively coordinate various responsible departments to establish a rigorous system of economic responsibility. They must adopt financial management to supervise agricultural economic activities. Thus the limited funds can be made to make improvements.

To make more efficient use of funds, the problem of adapting work plans to cope with fund allocation plans must be solved first. When various responsible departments formulate plans for the development of their undertakings they must plan their work well according to the principle of suiting their tasks to the available funds as well as spending less and

doing more work. The financial departments must enthusiastically and actively take part in the formulation of plans. If a plan is incompatible with the funds available they must promptly inform the leading cadres of the responsible departments. They should readjust and reduce the funds allocated to those departments which deviate from the plans, raise the quotas and expand their plans at random, and increase their staff and organs at will. Presently some agricultural aid funds are not used efficiently mainly because the work plans are too big, surpassing the limits of available financial and material resources. This results in excessive scale, extensive fronts and diverse distribution of funds. Many things are left half done. The invested funds and materials remain idle over long periods of time or they are even wasted. This situation must be altered promptly.

From now on when the fiscal agricultural aid funds are allocated the principle of combining power with responsibility should be persisted in, so that the money spending units will bear definite financial responsibilities. When local authorities subsidize communes and production brigades they should draw up contracts.

The responsible departments should also be responsible for the efficiency with which their subordinate units use the funds. In accordance with the characteristics of agricultural financial work they must gradually establish a whole set of financial management systems and management methods which are suited to the needs of agricultural modernization. They must strengthen examination and supervision as well as improve the economic effects. The economic effects of items of production and construction or items accomplished under work plans must be examined. What is more important, the comprehensive effects of promoting output growth and income growth must be examined too.

Making financial and economic disciplines stricter is an important means of insuring the efficiency of fund use. Various units' capital construction funds, circulating capital funds and operating expenditures must be used strictly in the channels stipulated by the state. The funds set aside for the institutions' vocational work like scientific research are not allowed to be used for expanding the establishment. No department is permitted to misappropriate or embezzle the remitted agricultural taxes. The scope of expenditures that involve society or policies must not be expanded at will. Financial and accounting personnel and the broad masses of people have the right to boycott, expose and launch prosecutions against violations of financial systems and financial and economic disciplines.

Agricultural financial work is the comprehensive expression of the fruits of agricultural productive activities. It is an important tool for collecting, distributing, managing and employing agricultural funds. It is an important constituent of fiscal agricultural aid work. We must put agricultural financial work in its proper position. We must strengthen leadership, improve coordination between departments and fully mobilize the enthusiasm of agricultural financial cadres so as to do a good job of agricultural financial management.

MAP OF CHINA'S DESERTS TO BE PUBLISHED

OW180818 Beijing XINHUA in English 0729 GMT 18 Apr 80 OW

[Text] Lanzhou, 18 Apr (XINHUA)--The Taklamakan Desert in the Xinjiang Uyghur Autonomous Region in northwest China is shifting at an annual rate of ten to fifteen metres.

This and other interesting phenomena about China's deserts are represented graphically on a new "Map of the Deserts of the People's Republic of China" which is to be published by the Cartographic Publishing House and will be available by June. It will be the first such map ever published in China.

On the scale of four million to one, the map shows the location of China's 128 million hectares of deserts as well as their topography and the movement of the dunes. One may also discover from the map which deserts in China are shifting and which are static or semi-static.

Experts at the Institute of Deserts under the Chinese Academy of Sciences here believe that the map will be helpful to China's agriculture, forestry, animal husbandry, transport industry and national defence. It will also be a valuable resource for surveyors, science planners and teachers at middle schools and colleges, they said.

The cartographers who worked on the map are Zhong Decai, assistant research fellow, and Lu Jinhua, engineer at the Institute of Deserts. Both have been engaged in desert research for some twenty years and have surveyed the deserts in Gansu, Xinjiang, Qinghai, Ningxia, Shaanxi and Inner-Mongolia on many occasions.

CSO: 4020

WAYS TO COMBAT DROUGHT OUTLINED

Beijing RENMIN RIBAO in Chinese 21 Jan 80 p 2

[Article: "Find New Sources and Economize Use; Combat and Guard Against Drought"]

[Text] Since the beginning of winter, some provinces and regions have encountered severe drought affecting more than 200 million mu at one time. According to weather forecasts, rain and snow this winter for the entire country was below normal, and some areas will be short of rain in the spring, which poses a grave threat to the normal growth of the summer crops. Therefore, overcoming drought and ensuring a bumper summer crop is of extreme importance to the completion of the annual agricultural production plan. Areas facing drought should give it their most serious consideration and definitely not treat it lightly.

"With water everything will be green, without water everything will be brown." Wherever irrigation conditions are good, there can be a rich harvest even with a drought. Some areas of Jiangsu and Hubei have had good harvests in the past 2 years in spite of severe drought and an important reason is that they have had guarantees of water. Now to strive to keep enough moisture in the ground for the summer crops through the winter and prevent spring drought, apart from improving field management and conserving soil moisture for the seedlings, it is critical to continue to improve water conservancy vigorously in conjunction with agricultural capital construction in order to expand the area under irrigation and improve the ability to combat drought.

China's agricultural irrigation construction already has a good foundation and this provides favorable conditions for combating drought. However, it should also be noted that in the past, because we have emphasized mainstay projects and slighted comprehensive projects, we have overlooked management and administration and so the effectiveness of many water facilities has not been fully developed. This is very unfavorable for resisting and guarding against drought. To exploit more fully the existing irrigation facilities in combating drought, water conservancy departments at every level and rural communes and brigades should actively engage in exploiting the potential of outfitting projects, especially in irrigation systems and small-scale water

conservancy projects which will produce immediate results. They should also pay serious attention to water-saving projects such as prevention of seepage in and removal of silt from irrigation ditches. By every means possible we should increase sources and economize on outflow, improve water consumption management, be systematic, scientific and economical in our use of water, and change the practice of wasting water. In investing in water conservancy, each area should give priority to projects which will combat present drought. In line with the demand to combat and guard against drought, first of all, efforts should be concentrated on completing water conservancy projects in progress which can be put into operation during spring plowing and sowing. Those projects for storing water should begin storing water as soon as possible.

Some areas have had some snow and rain recently, and this has somewhat relieved the drought situation. Some areas which have suffered from severe drought, through the effort of the masses in combating drought, in protecting seedlings and in improving management, the seedling situation of overwintering crops has already taken a turn for the better. However, the drought still has not been basically eliminated and is still occurring in some areas. Any complacency, slackening alertness, or carelessness will be extremely harmful. We should also guard against pessimistic hopelessness and sloppy management. Ideologically, organizationally and methodically, we must stand firm in combating drought--combating early if there is a drought, preparing early if there is no drought, and do everything we can to secure a bumper summer harvest.

8226

CSO: 4007

PROTECTION OF FARMLAND FROM POLLUTION DISCUSSED

Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 4, 1979
pp 3-4

[Article by Jin Shanbao [6855 0810 1415]]

[Text] Agricultural environment constitutes an important part in the environment for human existence. Agricultural production relies very much on the natural conditions. An environment complete with good soil, water and air is the fundamental condition absolutely necessary for the development of agricultural production. When the agricultural environment, such as the source of water, the air, the soil, etc. is polluted or damaged, it not only affects directly the yield of agricultural production, it also endangers human health through polluted farm produce and livestock. Therefore, protecting the agricultural environment from pollution and damage plays an extremely important role in the task of protecting the entire environment.

Today many nations in the world, especially those highly developed economically, because of their blind industrial development, the unchecked draining of toxic waste water, gases and residues, together with the reckless application of pesticides and chemical fertilizer in agricultural production, are faced with serious pollution of water resources, the atmosphere and their soil. This situation has directly affected the agricultural environment and has made environmental pollution a public hazard. As early as 1970, Premier Zhou pointed out: "The problem of this public hazard is new to us now. However, as soon as industrialization begins, it will become a major problem. The department of agriculture should bring up this question for discussion, because the farms and the forests need the air and the water." Eliminating pollution so that the agricultural environment is well protected is a major task. It is closely related to the high-speed development of agriculture and the realization of the four modernizations. It is also an important mission that demands immediate attention of the department in charge of agricultural research and technology.

In recent years, under the leadership of the Party Central Committee with Chairman Hua at its head, organizations have been set up to protect,

maintain and monitor a healthy environment. At the same time, several dozen offices, schools and institutes for agricultural science and research have been established. A great concerted effort has begun for the study of agricultural environmental protection. Within a short time, this research produced definite results. The research into quality standards has now brought under initial control chemicals in irrigation water, such as mercury, cadmium, arsenic, chromium, lead, copper, zinc and selenium. A total of 17 harmful matters have been studied including arsenide, fluoride, petroleum, volatile phenol, benzol, sulphide, trichloro-acetic acid, chloride, allyl-acetic acid, etc. Studies have been conducted on the pattern of their effect, at various degrees of concentration, on the growth and development of rice, wheat, melons and vegetables, and how they act and leave residual traces in these plants. These studies have determined the lethal points of concentration of the above-mentioned substances for these crops and the maximum permissible concentrations without polluting crops and the agricultural environment. Based on the results of these studies, the first set of standards for the quality of irrigation water was formulated for our country. It provides for industries and the urban construction departments a scientific basis for the utilization of sewage or other toxic water for farm irrigation and for the treatment of raw sewage. In the area of safety standards for pesticides, studies and experiments have been completed in the residual patterns of BHC, DDT, trichloroform, egos, parathion methyl, dichlorous, fenitrothion, imiden, organic arsenic, carbaryl, nitrofen, phoxim, etc.--a total of 16 pesticides--in eight different crops, including rice, corn, tobacco, tea, apples, oranges, cucumbers and vegetables as well as fruit trees. Safety standards have been worked out for the application of the 16 aforementioned pesticides on those 8 farm products and fruit trees. This will be of great importance to the scientific and practical application in agricultural production in the future, in enhancing the effectiveness of prevention and treatment of plant diseases and pollution of pesticides, and in ensuring the quality of agricultural by-products. Biological eradication methods for the prevention of plant diseases can reduce the amount of chemical pesticides, which has a definite effect on protecting the environment and crops from pollution by chemical pesticides and in safeguarding the health of humans and livestock. Some progress has been made also in this area. For example: certain positive results have been obtained by using beauveria and trichogramma for the prevention and treatment of corn earworm, trichogramma for control of the millet moth, trichogramma and yu mi ming [3768 4717 5820] for the prevention and treatment of the boll weevil, and ladybugs for the prevention and treatment of cotton aphid. Converting organic matter, such as excrement, sewage water, weeds, and solid waste, into methane not only supplements the supply of energy and helps conserve natural resources but also turns waste into a resource and hazard into benefit, while protecting the environment. Recently, many areas have produced methane on a large scale and have reached a stage of "cooking without wood or charcoal and lighting without oil or electricity," while environmental hygiene has taken on an entirely new look.

Although our country has made some progress in eliminating pollution and in protecting the agricultural environment, generally, these problems have not been solved too well. Today environmental pollution is not yet under control. In fact, it advances continuously. More and more waste gases, waste water, and residues are released by the industries; large quantities of pesticide are being used and the amount of chimney smoke and sewage water in the cities is on the increase, making the pollution of air, water, soil and crops more serious each day. It should be noted that the peril of environmental pollution often appears only after many years. It is not easy to recognize it immediately. However, when it is finally detected it often has reached a degree of severity, has become so wide-spread that it is hard to combat. We must learn from the lessons of the capitalist countries and give great emphasis right from the start on environmental protection, vigorously carry out scientific and technological research, and actively propagate and spread the techniques for the prevention and treatment of pollution in order to avoid future disaster.

Developments in the other countries indicate that in the fifties they adopted the technology for treating "the three wastes," namely sewage water treatment, air purification and the management of residue; and in the seventies, a combination of technological reforms and the advanced device of closed-loop circulation was used. At the same time, coordinated studies and evaluation of the environment as well as coordinated work in the prevention and treatment of pollution were in progress with the purpose of achieving thorough, economical and effective pollution control and environmental protection.

Pollution of the agricultural environment stems mainly from the three industrial wastes. Much evidence points to the likelihood that as long as the work of managing the "three wastes" is earnestly carried out, the hazard of the "three wastes" could be avoided. In this way, industrial development would not pollute the environment. The electro-chemical plant in Wuxi County is an outstanding example of the success of environmental protection. The plant has made great strides in eliminating the "escape, emission, dripping, leakage" (of polluting matter), and in planting trees and reforestation. The farm land around it has not been polluted at all. In the two agricultural brigades in the vicinity of a chloride and alkaline workshop and a polyvinyl-chloride workshop, yield of wheat has reached as high as more than 500 jin per mu and that of early rice, more than 800 jin per mu. The local farmer said happily, "The electro-chemical plant has not affected the crops. In fact, rice and wheat have high yields year after year." It is also important to understand fully the positive effect that development of agricultural protection has on the elimination of pollution. When forests and other plants can absorb large amounts of toxic gases from industry while releasing oxygen, they are in effect purifying and regenerating the air. Using well-processed industrial waste water for farm irrigation not only provides the needed liquid fertilizer but also further purifies the sewage water, thus preventing the pollution of underground water sources. Consequently, the so-called theory that industrial development is always accompanied by the "three wastes" which pollute and damage the environment has no foundation.

In our country the agricultural territory is immense and the scope for agricultural environmental protection is far and wide. We must develop the superiority of the socialist system, rely on the masses, make a great effort to eliminate pollution and have the forests, meadows, parks and resources of the various forms of valuable wild life and plants well under protection. We must give emphasis to the monitoring of and research in environmental protection, thus creating a good environment to ensure high-speed development of agricultural production.

9523

CSO: 4007

PROVINCES PLAN USE OF MULTIPURPOSE RESERVOIRS

OW200307 Beijing XINHUA in English 0258 GMT 20 Apr 80 OW

[Text] Wuhan, 20 Apr (XINHUA)--The Chinese Government is encouraging local authorities to make better use of reservoirs--to supply fish and to keep hydroelectric power stations running.

Hubei, Hunan and Guangdong provinces and the Guangxi Zhuang Autonomous Regions, all in southern China, have already worked out plans for the multi-purpose use of their reservoirs, XINHUA learned this week.

Hubei plans to increase the annual catch of fish in its 6,000 reservoirs from 10,500 to 50,000 tons in the next few years, and to plant more fruit and timber trees on the reservoir banks. The trees will also help stop soil erosion and prevent the reservoirs from silting up. Authorities in charge of the reservoirs are also encouraged at the same time to engage in livestock breeding for money and fertilizer.

In Hubei Province, small electric power stations, with a combined generating capacity of 200,000 kilowatts, have been built on some reservoirs (over) the years. The provincial leaders have called for improvement of these stations and the construction of new ones to exploit the hydro-power potential of the reservoirs.

Since new China was founded in 1949, peasants in their tens of millions have engaged in building reservoirs during the winter and spring seasons, although the full potential of the reservoirs has been ignored up until recently.

CSO: 4020

METEOROLOGISTS FORECAST SUNSPOT EFFECT ON CLIMATE

OW180824 Beijing XINHUA in English 0738 GMT 18 Apr 80 OW

[Text] Beijing, 18 Apr (XINHUA)--Chinese meteorologists forecast that the current sunspot maximum will cause abnormal climatic conditions in China as well as in the northern hemisphere.

On the basis of records over the last 40 years, Chinese scientists confirm that temperature rose by an average of a half or a whole degree one month after bursts of flares in the wake of peak sunspot activity.

According to Chinese records, temperatures in most parts of China are below average in the years of maximum or minimum sunspot activity, and above average in between. Rainfall varies. It is scarce in north China and abundant in the lower reaches of the Yangtze River in the years between maximum or minimum sunspot activity.

Their findings were confirmed by the flooding in the Yangtze and the Huai River basin in 1954, the severe cold of 1955, the drought in central China, the flood in the Pearl River basin and storms in north China in 1959, the long dry spell in north China and the flood in the Huai River basin in 1965, the severe cold which caused Bohai Bay to freeze in 1969, as well as the severe cold of 1976. Those were years of maximum or minimum sunspot activity, or immediately after.

Scientists believe that this is caused by strengthened south-north atmospheric currents in the 11-year cycle of sunspot activity.

CSO: 4020

SHORTAGE OF HOG VACCINES REPORTED

Letter to Editor

Beijing RENMIN RIBAO in Chinese 21 Jan 80 p 2

[Letter to the Editor by Zhang Jianzhi [1728 6015 2655] of the Taiyuan [1132 3293] Brigade of Dafeng [1129 0023] County, Jiangsu: [Why Is the Supply of Hog Vaccine Insufficient?"]

[Text] Comrade Editor:

I am a barefoot veterinarian in a rural brigade. A problem I have noticed in my work is that the supply of hog vaccines is insufficient. Our brigade has over 1,000 hogs, but there is only enough hog cholera and swine erysipelas vaccine to protect 900 of them. There is even less swine plague vaccine: enough for only one-third of the hogs.

Now that hog raising by rural brigades, production teams and individual commune members is increasing rapidly, hog disease preventive work should also be strengthened. Prevention of domestic animal diseases is most important, so why can't more vaccines to prevent hog diseases be produced? Vaccines require low temperature storage but villages generally lack refrigeration equipment. This is another major problem in preventive work that should be resolved, but has not been resolved.

Zhang Jianzhi, Taiyuan Brigade,
Dafeng County, Jiangsu

Veterinary Medicine Office Reply

Beijing RENMIN RIBAO in Chinese 21 Jan 80 p 2

[Text] We [editors of RENMIN RIBAO] asked the Veterinary Medicine Office of the Animal Husbandry Bureau of the Ministry of Agriculture to answer this question on the shortage of vaccines, and the following is its reply:

Most of the country's provinces, municipalities and autonomous regions have veterinary biological medicine factories with great potential for producing vaccines. Vaccines are in short supply in some places mainly because of problems in vaccine management and use of funds. The state lays out a great deal of money for epidemic prevention. In 1979 the base amount was increased one-third. In addition, many provinces and regions have also added funds to the base amount budgeted for epidemic prevention by the central authorities. However, because there are so many domestic bird and animal diseases, even if the state appropriates more money for epidemic prevention it is still impossible to expand prevention to every disease; prevention can only be extended to critical epidemics in different places. There are now two major ways to manage the supply of vaccines: one is for each prefecture and county to submit annually to the provincial bureau or veterinary biological medicine plant a vaccine requirement plan. This method can guarantee supply, but it is very wasteful. The other method is for the province to divide the epidemic prevention expenses among prefectures and counties with the unused remainder being retained by the county. This method provides tighter control of vaccines, and so some places might have shortages of supply. Which method of management is best still awaits study.

As far as refrigeration facilities for vaccine are concerned, every year the state appropriates a certain amount of supplemental funds to help equip commune veterinary stations which are really in need of financial aid. Although these measures cannot completely satisfy the demand, this problem will gradually be resolved as the nation's economic condition improves.

8226
CSO: 4007

TRAINING CLASSES HELD FOR AGRICULTURAL MANAGEMENT CADRES

Beijing GUANGMING RIBAO in Chinese 7 Feb 80 p 1

[Article by Guo Deyi [6753 1795 0001]: "Help Various Levels of Leadership Raise the Level of Agricultural Science and Technology; First Cadre Training Courses Held by Seven Agricultural Schools, as Assigned by Ministry of Agriculture, Conclude"]

[Text] The Ministry of Agriculture assigned seven agricultural schools to hold the first agricultural cadre training courses. After 4 months, they concluded in January. The students attending these training courses were 514 above-country-level agricultural management cadres from 187 counties throughout the country, including 42 cadres from some 16 different minorities, including Mongolians, Tibetans, Zhuangs and Miaos.

Early Last year, in order to raise rapidly the management abilities of comrades in managing agriculture at various levels and in agricultural sciences and technology, the Ministry of Agriculture assigned seven agricultural schools--Beijing Agricultural University, Zhejiang Agricultural University, Shenyang Agricultural College, Central China Agricultural College, South China Agricultural College, Northwest Agricultural College, and Southwest Agricultural College--to rotate in training 7,000 agricultural cadres from above-country-level in 3 to 5 years. These 7 schools took this training work very seriously and organized over 350 experienced teachers to write the material and to teach.

The students in these courses were older. Those between 40 and 50 comprised 69 percent of the students, the oldest being 68, but their enthusiasm for learning was high. Some 50 and 60-year old comrades, who in the past had relied on secretaries, now put on their reading glasses and conscientiously took notes, generally writing down between 100,000 and 200,000 characters. In the 4 months of training they studied agricultural economic management and policy, agronomy (including plant physiology, genetics, crop cultivation, soil and fertilizers, and plant protection) veterinary medicine, and agricultural mechanization. They also increased their knowledge of agricultural sciences and technology. Many students said in summary: in the past, leading agricultural production, apart from grasping class struggle, amounted to hurried planting, hurried harvesting, hurried handling over the grain; now they understand that to improve agriculture it is necessary to observe strictly the regulations of agricultural science and economics.

NATIONAL

CONSTRUCTION OF ADDITIONAL COLD STORAGE FACILITIES ANNOUNCED

OW160238 Beijing XINHUA in English 0223 GMT 16 Apr 80 OW

[Text] Beijing, 16 Apr (XINHUA)--It has been decided that China is to add 26 more cold storage facilities this year with a total capacity of 200,000 tons, according to the Ministry of Commerce.

This brings the number of cold stores to be erected this year to more than 280, totalling 556,000 tons in capacity.

These additional cold stores are to be built in China's major pig-raising areas including the provinces of Jiangsu, Zhejiang, Shandong, Sichuan and Liaoning and the cities of Beijing, Shanghai and Tianjin.

A sum of one hundred million yuan has been recently earmarked for the expansion.

Commercial departments throughout China now have 827 cold stores with a combined capacity of 1.1 million tons, as well as 2,665 refrigeration trucks and 82 such ships.

The construction of the new cold stores is one of the measures being taken to meet the expected increasing state purchase of hogs and poultry eggs this year.

Last year, 124 cold stores with a total capacity of 100,000 tons were built and put into use.

Apart from speeding up the implementation of planned projects, efforts are to be made to increase the freezing capacities of existing cold stores this year. Last year, the daily national freezing capacity was increased by 1,000 tons.

CSO: 4020

AIRCRAFT WIDELY USED IN AGRICULTURE, FORESTRY

Development of Agricultural Aircraft

Beijing GUANGMING RIBAO in Chinese 1 Feb 80 p 4

[Text] Aircraft are widely used in agriculture, forestry, livestock raising, and fisheries for such things as seeding, fertilizing, weeding, insect control, fruit ripening acceleration, defoliation, artificial rainmaking, forest fire prevention, grassland rodent elimination, and resources surveying. Practice shows that aircraft mean high efficiency, fast speed, low cost, good quality, and large profits. According to experiments at the Nanwanhu farm of Guangzhou, planting 25,000 mu of paddy fields last year using two aircraft for direct seeding, took the place of 50 men, took only 30 hours to seed the whole thing, saved five-sixths of the work force which would have been needed if ground agricultural machinery had been used for direct seeding, and raised the work efficiency 18 times. Using aircraft instead of ground agricultural machinery for seeding, weeding, and spraying, can reduce spending by more than 1.10 yuan and save 22.5 kilograms of seed per mu. At the same time, since aircraft spread the seeds evenly, distribute them rationally between individuals and groups, and perform field management promptly and quickly, direct seeding of paddy rice by aircraft yields 130 jin per mu more than direct seeding by machines. It is truly a fast and economical method.

It is just because agricultural aircraft have these advantages that since the first time in the world aircraft were used to control forest disease and insect damage in 1911, and especially in the last 10 years or more, agricultural aircraft have developed rapidly abroad, their numbers have increased, their quality and performance have gotten better and better, and their use has become more and more widespread. It can be seen that the nations that use agricultural aircraft the most, have the most developed agriculture, forestry, livestock raising, and fisheries. In a certain sense, the degree to which a nation uses agricultural aircraft reflects the level of that nation's agricultural modernization.

China is vast, rich in resources, and has always emphasized agriculture. The vigorous development of agricultural aircraft not only bears important significance to realizing the modernization but is full of broad prospects for the future.

In the 30 years since the founding of our nation, China's agricultural aviation has already developed greatly. Just in the manufacture of aircraft alone, the aircraft industry is already pretty big. It has the technology, conditions, and capacity to design and produce agricultural aircraft on its own, and has trial-manufactured and produced two types of small aircraft that can be used directly in agriculture, forestry, and livestock raising.

In practical results, whether agriculture, forestry, livestock raising, or fisheries, agricultural aircraft have achieved great successes in all of them. According to statistics of the departments concerned, in the last more than 20 years, China has used aircraft for forest seeding amounting to a total acreage of over 160 million mu, of which over 22 million mu are mature forests and over 41 million mu are foreseeably mature forests. The survivability rate reaches 39.5 percent and accounts for 10 percent of the entire afforested area preserved since the founding of our nation. Over 1.5 million mu of Yunnan pine seeded by aircraft in the barren hills of the four countries of Xichang, Xide, Ganlo, and Yuexi in Sichuan Province in 1959, have now become lush and green with a timber volume amounting to over 10 million cubic meters. In 1971 they began selective cutting and have produced 30,000 cubic meters of small-diameter lumber per year with a gross income of over 1.5 million yuan. Before Hejiao [0678 6030] Commune of Zhaojiao County, Sichuan, used aircraft, the hills were barren, the area was remote, and the people were poverty-stricken. After they seeded forests by aircraft, the landscape changed radically and agriculture, forestry, livestock raising, and subsidiary industries gained a high degree of development. Practice demonstrates that afforestation by aircraft is high-efficiency and low-cost. One "Yun-5" aircraft can seed 20,000 to 30,000 mu in one day, the equivalent of 2000 to 3000 man-days, at a cost of only 1 to 3 yuan per mu (including the cost of seed), which is much less than direct seeding by manual labor. In addition, insect control by aircraft amounts to as much as a billion mu-treatments per year. In the last 2 years, experiments on direct seeding of rice and fertilizing of rice paddies in Zhejiang, Guangdong, and Jianxi, have all achieved excellent results.

However, in comparison with China's requirements for industrial modernization and in comparison with advanced foreign levels, our current agricultural aircraft are few in number, restricted in use, and far short of the requirements for agricultural modernization.

In order to develop agricultural aviation and speed up the pace of agricultural modernization, we think we first have to reform the current administrative system and organize agricultural aviation companies or service production brigades which would serve as enterprises maintaining independent accounting and taking responsibility for their own profits and losses. We could also follow the example of advanced foreign experience and establish comprehensive agricultural service companies that would not only provide aircraft for the user units but would also provide seed, fertilizer, and insecticide, take care of everything through the whole operation, unify income and expenditures, reduce intermediate links, and raise the quality of service.

Next, we must vigorously develop agricultural aircraft with even better performance, concentrate on improving the models, improving the performance, extending the service life, and overcoming the defects of the agricultural aircraft on hand, absorb advanced foreign technology, and as fast as possible, develop safe and reliable, technologically advanced, large-payload, economically beneficial, easy-to-use-and-maintain agricultural aircraft to meet the many operational needs of agriculture. At the same time, we suggest that the units concerned in the aviation industry perform their technological service well and help foster air- and ground-duty personnel and administrative personnel.

Finally we still have to improve our administrative methods, gradually establish a whole system of administration, constantly reduce the actual costs, and get the peasants able and willing to use it.

Yun-11 Agricultural Aircraft

Guangzhou NANFANG RIBAO in Chinese 12 Oct 79 p 1

[Text] From 9 to 12 October 1979, the Yun-11 agricultural aircraft manufactured by Plant 122 of the Third Ministry of Machine Building, gave a demonstration of spraying to control forest diseases and insect damage in the mountains and Baiyunshan area of the Zhuliao [4554 2436], Jiufo [0046 0154], Zhongluotan [6988 5507 3389], and Taihe [1132 0735] communes in the outskirts of Guangzhou Municipality. Within 4 days, a total of 16 flights sprayed 60,000 mu. The insect elimination rate in the sprayed forest amounted to over 80 percent.

The Yun-11 agricultural aircraft was designed and manufactured in China and all of its materials and equipment were also produced in China. The successful design and manufacture of this agricultural aircraft has filled the gap in this area of China's aviation industry. In 1975, Plant 122 of the Third Ministry of Machine Building undertook the task of designing and manufacturing this aircraft, and manufactured the first one in that year. After many improvements, the basic model was arrived at in 1977. It is pleasing to the eye, compact and light-weight. This aircraft is comparable with agricultural aircraft currently used in China. It has the following characteristics:

1. It has good maneuverability in the air, a high rate of climb, as much as 3.5 meters per second, a good field of vision, and it can assure a high quality of performance.
2. Its needs for an airfield are simple and convenient. It can take off and land on the grass or a stretch of level ground packed down a little by a tractor.
3. Its equipment is simple and reliable, and it has low air resistance.

The Yun-11 agricultural aircraft was exhibited at this year's [1979] spring trade fair where it was highly acclaimed by foreign visitors. It will continue to be exhibited at this year's autumn trade fair.

7755

CSO: 4007

NEW VARIETY OF POPLAR PROVES SUCCESSFUL

Beijing GUANGMING RIBAO in Chinese 7 Feb 80 p 1

[Article: "A New Variety of Chinese Poplar--Xiaoheiyang--Becomes the Main Variety Planted in 'Three Northern Provinces'"]

[Text] Hailed as a "new star in the green kingdom," China's new poplar variety, the xiaoheiyang [1420 7815 2799], has already become the main variety planted in the poplar forests of China's "three northern provinces."

Xiaoheiyang is a hybrid successfully bred by artificial cross selection of a local Chinese variety of small leaf poplar as the mother plant and a European black poplar huazhi [5363 2655] from Ufa, the capital of the Bashkir ASSR in the Soviet Union. This scientific research was undertaken by the Forestry Research Institute of the Chinese Forestry Science Research Academy and local forestry science and technology workers from Heilongjiang, Jilin, Nei Monggol and Shaanxi.

In tests, the xiaoheiyang could survive the winter normally at temperatures of -39° centigrade, and thus could adapt to the climate from Aihui [1947 6540] Prefecture in Heilongjiang in the north to the Yellow River-Huai River plain in the south. It could be a fast growing variety for primary planting in China's "three northern provinces" and could be used for supplementary planting in the North China Plain.

Comparative tests in afforestation in Heilongjiang, Jilin and Nei Monggol shows that the xiaoheiyang grows 2 to 3 times faster than locally planted small-leaf poplars and small Cathay poplars. The quality of xiaoheiyang wood is close to that of maobai [3029 4101] poplar and a good material for use as civil construction and manufacturing furniture and plywood. According to tests made by the Paper Research Institute of the Ministry of Light Industry, the fibers of xiaoheiyang wood are 860 mm long, 21 mm wide, a ratio of 41:1 length to thickness and thus good raw material for making paper.

After the xiaoheiyang was chosen as a good variety for key expansion in 1976 at the National Poplar Survey Testing Meeting, northern regions of China promoted the results of this scientific research with excellent results. In recent years, the area planted in xiaoheiyang seedlings in Heilongjiang has been 45 percent of the entire province's seedling area. Now xiaoheiyang has become the main variety planted in the 5,000 mu of poplar forests in the "three northern provinces" and will gradually replace the slower growing xiaoqing [1420 7230] poplars and other mother-stock small-leaf poplars.

SCIENTISTS PRODUCE NEW STRAIN OF POTATOES

OW210148 Beijing XINHUA in English 0121 GMT 21 Apr 80 OW

[Text] Beijing, 21 Apr (XINHUA)---How to prevent degeneration of potatoes resulting from continuous propagation of the crop?

Professor Li Jinghua of the Northeast China Agricultural College in Heilongjiang Province is successfully tackling this problem that has plagued potato breeders for generations. Using true seeds of the crop instead of tubers, he has produced through two decades' hard work five new varieties of potato which are highly resistant to degeneration. One of these, called "Dongnong 10773," takes 45 days to mature, from the sprouting of the seed to the ripening of the tubers, less than any other early-ripening variety known in China. Its output, however, is anywhere from 30 to 100 per cent greater.

Professor Li Jinghua made the breakthrough after painstaking study of the factors affecting the reproduction of the crop, including ecological factors, the method of propagation of the crop, and the different kinds of viruses contained in the tubers. He established that viruses, believed to be a major factor leading to degeneration of the crop, can be eliminated in the course of fertilization between the stamen and the pistil of the flower. In contrast, fruits grown from seed tubers pass viruses on to the succeeding generation. As viruses accumulate, the fruits become smaller and smaller with each succeeding generation.

The theory can be verified by the fact that wild potatoes, instead of degenerating, become a weed which runs riot in subtropical South American farmland.

A total of 20,000 hectares in 12 provinces in China are used to produce commercial seed tubers of the varieties evolved by Professor Li. One of these seed centres is in Jiashou County, Anhui Province, east China, where the degeneration problem was so serious that local peasants had to obtain seed tubers from Heilongjiang Province in the far northeast, where the climate is much colder. Professor Li in 1970 chose this particularly unfavourable place for experiments and, in three years, the

county became self-sufficient in the supply of potato seed tubers for reproduction. It is now a seed centre for Anhui and neighbouring provinces.

What Professor Li achieved has aroused the attention of a delegation from the International Potato Research Centre in Peru, which visited his experimental farms in 1978. "We are convinced that it is of great value to use true seeds to produce virus-free potato tubers for production purposes," commented the delegation in its report to the centre upon conclusion of the visit. "China is ahead of all other countries in the world in research in this field."

CSO: 4020

NEW POTATO PLANTING TECHNIQUE PROVES SUCCESSFUL

Ministry To Increase Area

Beijing GUANGMING RIBAO in Chinese 9 Feb 80 p 1

[Article by Liu Shougang [0491 1343 4854]: "Forest Areas Get Good Results in Test of New Potato Planting Technique; Concerned Offices of the Ministry of Forestry Prepares to Extend the Technique to a Larger Area This Year"]

[Text] Some forestry and domestic production brigades of forest areas of Liaoning, Jilin, Heilongjiang, Yunnan and Shaanxi provinces last year test-planted over 3,000 mu using a new technique of planting whole potatoes. The average mu produced 3,000 to 4,000 jin--two to three times greater than planting with cut-up potatoes, with the highest being four times higher. Now the concerned offices of the Ministry of Forestry are conscientiously summarizing this experience and are ready this year to increase the area planted by the new technique.

Large areas in forest regions are devoted to potatoes. According to the statistics, such areas in Heilongjiang and Jilin alone are 350,000 mu. In the past, because the method of planting cut-up potatoes was used, the deterioration and disease of the potatoes was severe and for a long time the output per mu was between 1,500 to 2,000 jin. The problem making forest areas being self-sufficient in potatoes was not solved. So, last March, the concerned offices of the Ministry of Forestry held a training class in the Shanhetun [1472 3109 1470] forest area of Heilongjiang in which 120 people from 3 northeast provinces participated. They studied and experimented with the new technique of planting whole potatoes. The results were very delightful. For example, 3 units belonging to the Tulihe [0956 6849 1470] Forest Bureau of the Yakeshi [3660 0344 4258] Forestry Management Bureau planted 133 mu using whole potatoes, with a gross production of 562,100 jin. Unit production totaled 4,223 jin, of which the Xiniqu [6006 1441 3049] Brigade's production per mu was 6,700 jin. Potatoes produced in the test fields were larger: 45 percent weighed over half a jin each, and 10 percent weighed over 2 jin, the largest over 4 jin. Plants producing 3 to 6 jin made up 30 percent of the plants. After the Huzhong [0729 0022] Forestry Bureau of Daxinganling [1129 5281 1344 1545] did test

planting, they analyzed the results. Potatoes from plants grown from cut-up potatoes weighed a total of 1.2 jin and bore 16 potatoes; each plant grown from a large whole potato produced 23 potatoes weighing a total of 4.6 jin. On reflection, everyone agreed that planting whole potatoes is good, as they are big and of good quality. One hill can fill a basket and a small basket won't do.

Forest areas in Yunnan also have a high regard for planting whole potatoes. Some bureau leaders took the lead in trying the experiment and pushed the test work forward. The test area in the district was over 1,500 mu and, under rather severe drought conditions, generally doubled production. The Ningdong [1337 2639] Forest Bureau in Shaanxi Province tested 8.2 mu with a gross output of 19,740 jin setting a new record in the province for potato production.

Through practice, the forest areas trying this experiment learned that the new technique of planting whole potatoes had many good points, such as preserving soil moisture in drought and preventing disease and insect damage and the seedlings are even and strong, grow vigorously, and save time and work in planting. The cost is low, productivity is high and it is suited to large areas.

Dijia Commune Rewarded

Beijing GUANGMING RIBAO in Chinese 9 Feb 80 p 1

[Article by Yu Dongchen [0060 2639 2525]: "Dijia Commune Plants Whole Potatoes and Gets a Big Harvest"]

[Text] After the Dijia [5049 1367] Commune of Yuhong [0060 3163] district of Shenyang City decided in 1978 to adopt the new technique of planting whole potatoes and had a large area of good harvest, last year they planted over 1,010 mu again and, in spite of the poor conditions caused by a cool spring and hail followed by drought, they still had a harvest which averaged 3,690 jin per mu. Ninety-nine of those mu averaged 4,918 jin per mu. The 3 high producing test mu produced 7,535 jin per mu on the average, including 1 that attained 8,087 jin. In last year's winter assessment, this commune won an award from the Shenyang Nonstaple Foods Bureau of "Thousand Mu Striving for High Yields" for planting whole potatoes.

Starting in 1978, the Dijia Commune's adoption of this new technique of planting whole potatoes was made part of the State Scientific Research Plan by the Shenyang City Science Committee. This year the Dijia Commune will plant 1,000 mu and will achieve even greater achievements, and it will welcome assessment by the state.

8226

CSO: 4007

SUPERIOR QUALITY COTTON BEING BRED

Beijing ZHONGGUO NONGYE KEXUE [SCIENTIA AGRICULTURA SINICA] in Chinese No 4, 1979 pp 61-67

[Article by Yu Jingzhong [0205 2417 1813] of the Cotton Stock Farm of Siyang County in Jiangsu Province: "Several Views on the Problem of Breeding High Yielding and Superior Quality Cotton in Our Nation"]

[Text] Since the 1970s, this author has been engaged in the work of experimental production and regional experiments in planting cotton varieties and has made some observations and has analyzed the varieties that were used in the experiments. Twenty-six varieties were used in regional experiments of cotton varieties in the Yellow River valley from 1973 to 1978, and experiments were conducted at 104 sites. A total of 10 varieties were used in regional experiments in Jiangsu Province between 1974 and 1975, and experiments were conducted at 33 sites. Based on data of these regional experiments and in summarizing the present situation of our nation's work in cotton breeding, several opinions concerning the problem of breeding high yielding and superior quality cotton have been presented,

The Present Work in Cotton Breeding

I. Breeding of High Yielding and Quality Varieties

Our nation has many people and little land. In cotton production, the first thing is to raise unit area production. Thus in cotton breeding, the property to produce bumper yields is emphasized, and relatively great achievements have been realized. At the beginning of the 1950s, the varieties "Delta Pine 15" and "Delta Pine 14" introduced from abroad showed superiority in producing increased yields when compared to domestic varieties. When these were planted in regional experiments in the Changjiang and Yellow River valleys, they produced average increases of 19.5 and 14.6 percent in yield of ginned cotton respectively. During the mid 1960's, the introduced variety "Guangye Delta Pine cotton" equaled or produced a slightly lower yield than the domestic variety "Dongting No 1," and the superior yield basically disappeared. In 1974-75, a joint experiment was conducted throughout all cotton regions of the nation to test varieties introduced from abroad. Twelve varieties were part of the experiment including "Delta Pine 16" which

was once propagated over the largest area in the United States. Results of the experiments indicated all introduced varieties yielded less than the cotton stocks of the varieties in our nation at present. Taking the best performer of them all--"Delta Pine 16"--as an example, its average unit area yield of ginned cotton in the Changjiang River valley cotton regions was 95.8 percent of that of the controlled variety, and only 88.4 percent of that of the controlled variety in the Yellow River Valley cotton regions. The "Xuzhou 142" produced a yield of 16.2 percent more than "Delta Pine 16" and 20 percent more than "Delta Pine 45A" varieties. In quality, the cotton varieties bred by ourselves in our nation are still far poorer than the varieties introduced from abroad. The poor quality is manifested in the following:

(1) Strength of the fiber is poor: Figure 1 shows the average values of the absolute strength of the varieties of cotton bred by ourselves in our nation (single fiber strength) and the relative strength (length of broken fiber) are obviously lower. For example, compared to "Delta Pine 16," the single fiber strength is lower by over 0.5 gram, and the length of broken fiber is lower by about 3 kilometers. Among the 22 varieties bred by ourselves, there were only four varieties that possessed a single fiber strength of over 4 grams and there were only two varieties that possessed a length of broken fiber of over 24 kilometers. And none of them reached the level of "Delta Pine 16."

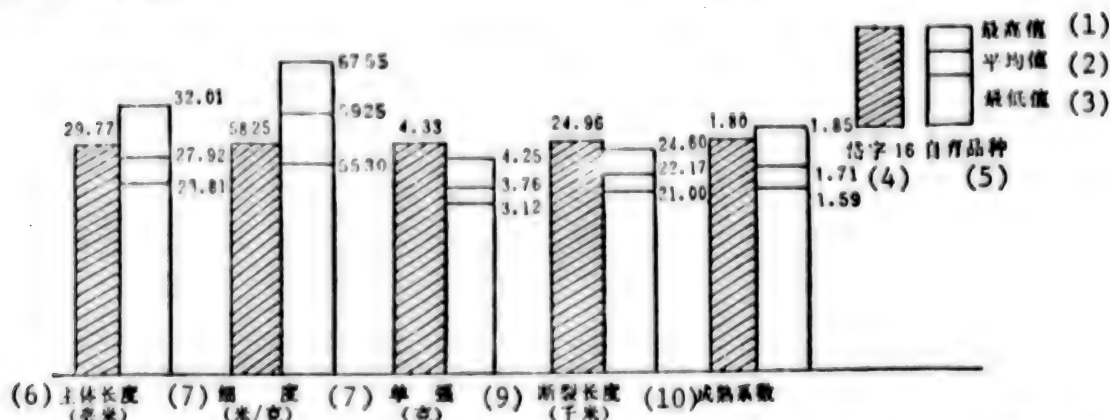


Figure 1. Comparison of the Quality of Fibers of Varieties Bred by Ourselves in Our Nation and Varieties Introduced from Abroad

(Regional Experiments of the Yellow River Valley 1973-1978)

Key:

- | | |
|--------------------------------|-------------------------------------|
| 1. Highest value | 6. Length of main body (millimeter) |
| 2. Average value | 7. Fineness (meter/gram) |
| 3. Lowest value | 8. Strength of single fiber (gram) |
| 4. Delta Pine 16 | 9. Length of breaking (kilometers) |
| 5. Varieties bred by ourselves | 10. Maturity coefficient |

(2) Incomprehensiveness: Although some varieties produce fibers whose length or fineness is at or above the level of those of introduced varieties, there are no varieties that produce fibers possessing all three superior qualities of length, fineness and strength.

(3) The conflict between high yield and superior quality is more outstanding: According to data of the regional experiments of the Yellow River valley between 1973 and 1978, the correlation coefficients of the yield of ginned cotton and the length of the main body, strength of the single fiber and fineness for the 6 years averaged out to be +0.088, -0.168 and -0.082, reflecting a definite conflict between yield and strength even when the strength of the fiber was universally lower.

In general, the quality of the varieties of cotton bred by ourselves is still not suitable for the need required in developing the textile industry. The most urgent task in cotton breeding work at the present time is to hasten selective breeding of comprehensively superior quality cotton, especially new varieties that can make a breakthrough in fiber strength based on continued raising of bumper yields.

II. Breeding of Early Maturing Varieties and Quality Varieties

Our nation's cotton breeding workers also place much emphasis on early maturity. The "Heshanmian No 1" is a breakthrough in breeding of early maturing varieties. The high yielding varieties "Xuzhou 142" and "Lumian No 1" are also famous for their early maturity. In the regional experiments of the Yellow River valley from 1973 to 1978, the correlation coefficients between the percentage of flowering before frost and the yield of ginned cotton were all positive except for one year (-0.040), and the average was +0.352. In the regional experiments of cotton varieties in Jiangsu Province between 1974 and 1975, the correlation coefficient between the percentage of flowering before frost and the yield of ginned cotton reached +0.811, surpassing the percent outstanding standard ($r_{0.01} = 0.765$).

But the problem of quality also exists in breeding of early maturing varieties. In the regional experiments of the Yellow River valley, for 6 years without exception, the correlation coefficients between the percentage of flowering before frost and strength of the single fiber were all negative (-0.069 to -0.495) with an average of -0.226. The correlation coefficient between the percentage of flowering before frost and maturity was also negative, averaging -0.375. Ordinary early maturing varieties often withered early. The leaves withered and shedded at an early stage and could not continue to produce nutrients to supply the development of cotton fibers. Thickening of the fibrous wall ceased prematurely. The degree of maturity of the fibers was not high and strength of the fibers was weak. Therefore, types of cotton that mature early but do not wither early must be selectively bred to eliminate the conflict among high yield, early maturity and superior quality so that they may be unified.

III. Adaptability of High Yielding Varieties

A high yielding variety of superior quality must possess a wide environmental adaptability. The regressive coefficient between the yield of each variety and the average yield of all tested varieties using the data of the regional experiments shows that varieties with a coefficient larger than 1 belong to those high yielding varieties which are in a favorable environment. Varieties with a coefficient smaller than 1 are those that can better adapt to unfavorable environments. Varieties with a coefficient close to 1 and high average yields are those that possess a wide range of adaptability. In the regional experiments in 1975 in Jiangsu Province, the "Xuzhou 142" produced the most yield of ginned cotton (averaging 154.01 jin/mu) with a regressive coefficient of 1.134. "Simian No 1" produced the second highest yield (140.93 jin/mu) with a regressive coefficient of 1.008. Although the yield of "Simian No 1" was lower than that of "Xuzhou 142," its general adaptability is stronger. This may be related to the characteristics of the delta pine cotton line which possesses sufficient reserve strength and which does not easily wither early.

IV. Disease Resistance of High Yielding Varieties

The development in the breeding of disease resistance in recent years has been rapid. Following the Shaanmian line, another disease resistant high yielding variety "86-1" emerged. This preliminarily solved the conflict between disease resistance and high yield. Table 1 indicates the conflicts between the strength of resistance to disease of disease-resistant varieties (represented by the index of seriousness of the disease) and the property of bumper yield and early maturity have already been overcome. This is a rare and precious achievement. But some conflict between disease resistance and the quality of fibers still exists. This also reflects the urgency and the universality of the problem of quality. In addition, selective breeding of varieties that are resistant to many kinds of diseases and insect pests and changing the situation of cotton being the "chronic invalid," reducing cost and preventing pollution are also problems that need to be solved as quickly as possible by breeding workers.

Table 1. Correlation Coefficients of Indexes of Seriousness of Disease and Yield, and Quality of Fiber

(Yellow River Valley--Regional Experiments of Cotton Varieties Resistant to Withering Disease Throughout the Nation 1978)

(2) (3) 项目	(1) 项目	(4) 籽棉产量	(5) 皮棉产量	(6) 霜前花 %	(7) 铃重	(8) 衣分	(9) 光电仪长度	(10) 单强	(11) 细度
(12) 病情指数		-0.722	-0.632	-0.611	-0.001	+0.007	+0.145	+0.081	+0.205

$$r_{0.05} = 0.707$$

$$r_{0.01} = 0.834$$

(Key on next page)

Key:

- | | |
|-----------------------------|-------------------------------------|
| 1. Item | 7. Weight of boll |
| 2. r values | 8. Gin turnout |
| 3. Item | 9. Photoelectrographic length |
| 4. Yield of seed cotton | 10. Strength of single fiber |
| 5. Yield of ginned cotton | 11. Fineness |
| 6. Flowering before frost % | 12. Index of seriousness of disease |

Design of High Yielding Superior Varieties

The design of high yielding superior varieties of cotton of the present stage should be based on ecological types and emphasis should be placed on considering the two aspects of the plant type and the structure of the yield.

1. Plant Type

The plant type of cotton generally means the comprehensive positioning of the leaves, the main stem, the branches and the buds and bolls (the roots should also be included). An ideal high yielding plant type should enable the colony to more effectively utilize light, temperature, water, air and fertilizers under definite ecological conditions and to assure high and stable yields. The most important of these is the utilization of light energy.

(1 The types of cotton that can grow vertically but are limited in horizontal growth should be selected: The ideal plant type must benefit aeration and light permeability among plants but also must avoid closing the plants within, and must adjust to the maximum limit in the relationship between the colony and the inner parts of the individual plant as well as between the individual plant and the colony. This requires full utilization of horizontal space. The plants must be appropriate in height. The internodes of the main stem must be longer. The leaves must be small and erect. Phototropism must be strong. Self shading must be reduced as much as possible. At the same time, horizontal growth must be limited. The fruit branches must point upward and the fruit branches must be relatively short. It is best if the plant grows two to three fruiting nodes and then automatically ceases and yet the fruit branches must not be the short type. Seen from Table 2, plant height is positively correlated with the seeds, the yield of ginned cotton and the number of bolls formed on the single plant. It is worth pointing out that the plant height of the 10 varieties (including "Xuzhou 142," "Simian No 1," "Lumian 204," "Dai hong dai," "Dai zi 16") used in testing in the regional experiments in Jiangsu Province was between 92.63 and 110.04 centimeters. This indicates that even in such a case where the plants are all relatively tall, plant height can still manifest a beneficial function in increasing yield.

Correlation between the plant height and the yield of seed cotton is weakly negative, the shedding percentage is also negatively correlated. The nodal distance on the main stem and the yield are highly positively correlated (+0.620). This is because taller plants have longer internodes which separate the layer of leaves more and reduce shading under the plant and

reduce shedding. Table 3 fully explains this point. The percentage of shedding and the nodal distance on the main stem show a highly negative correlation (-0.982), reaching the 1 percent outstanding standard. It seems that the concept of "stunting" is not suitable for breeding high yielding cotton. Of course, consideration can be given to the breeding of varieties suitable for mechanized cultivation and high density cultivation.

Table 2. Correlation Coefficients Among Plant Height, Number of Fruit Branches, Yield and Boll Forming Property

(Regional Experiments of Cotton Varieties in Jiangsu Province 1974-1975)

(2), 值 (3) 项目	(1) 项目	(4) 株 高	(5) 果 枝 数
(6) 籽 棉 产 量		+ 0.625	- 0.495
(7) 皮 棉 产 量		+ 0.530	- 0.497
(8) 单 株 结 铃 数		+ 0.548	- 0.482

$r_{0.05} = 0.632$

$r_{0.01} = 0.765$

Key:

- | | |
|-----------------|---|
| 1. Item | 5. Number of fruit branches |
| 2. r values | 6. Yield of seed cotton |
| 3. Item | 7. Yield of ginned cotton |
| 4. Plant height | 8. Number of bolls formed on the single plant |

Table 3. Correlation Coefficients Between the Plant Type and the Yield of Seed Cotton and the Percentage of Shedding

(Jiangsu Test Point of the Comparative Experiments in Production of New Varieties of Cotton of the Nation 1978)

(1) (2) 项目		(4)	(5)	(6)	(7)	(8)	(9)
(3) 项目		株 高	主茎节距	果 枝 数	总果节数	果枝着生节位	果枝着生高度
(10)	籽 棉 产 量	-0.104	+0.620	-0.532	-0.232	+0.391	+0.146
(11)	脱 落 率	-0.014	-0.982**	+0.775	+0.701	-0.755	-0.431

$$r_{0.95} = 0.878$$

$$r_{1.61} = 0.959$$

Key:

- | | |
|------------------------------------|--------------------------------------|
| 1. Item | 6. Number of fruit branches |
| 2. r values | 7. Total number of fruiting nodes |
| 3. Item | 8. Nodal positions of fruit branches |
| 4. Plant Height | 9. Height of fruit branches |
| 5. Nodal distance on the main stem | 10. Yield of seed cotton |
| | 11. Percentage of shedding |

(2) Selection of types with an appropriate number of fruit branches and fruiting nodes and low shedding percentage: The shedding percentage of cotton buds and bolls is generally between 70 and 80 percent. This not only is a big waste in the view of the physiology of yield but many empty fruiting nodes exist and branch leaves grow profusely and shading is increased. An economical and reasonable plant type should have an appropriate amount of reproduction and a low shedding percentage. Therefore, regarding the number of fruit branches and the total number of fruiting nodes, the more the better is not necessarily true. As Tables 2 and 3 show, the number of fruit branches and the yield of seed cotton are negatively correlated (-0.495 to -0.532). The total number of fruiting nodes and the yield of seed cotton are also negatively correlated (-0.232), while the yield and the shedding percentage are positively correlated (+0.701).

(3) Selection of types with fruit branches growing on relatively high nodal positions and with concentrated boll formation during the early period of growth: According to the traditional view, the height of the plant and the nodal positions of the fruit branches should be low because it was generally believed that this was related to early maturity, and the plant type was

clustered. But early maturity is determined by factors of more formation of bolls and more concentrated formation of bolls during the early period of growth. The relationship between early maturity and the nodal positions of the fruit branches are not closely related. Thus the traditional concept that the plant type must be clustered is worth reconsideration. As described above, vertical growth should be dispersed and unclustered rather than short and dense. Seen from Table 3, the plants with their first fruit branch grown at a high nodal position produced high yields and the correlation coefficient was +0.391. Overly low fruit branches hinder aeration and light permeability and increases shedding percentage. The correlation coefficient between the nodal positions of the fruit branch and the shedding percentage is negative (-0.755). Overly low fruit branches also easily cause the bolls to rot and are not beneficial to mechanized harvesting of cotton.

(4 Selection of types with leaves that have a long functioning period and with healthy branches and green leaves during the late period of growth: The problem of plant type related to the time of photosynthesis concerns the functioning period of the leaves, and especially the functioning period of the protective leaves of the cotton boll. In general, leaves that are thicker, that have a darker color, and whose fleshy tissue is more compact have a longer functioning period. High yielding varieties of superior quality have leaves that can retain a relatively strong photosynthesis during the late period of growth until there are large amounts of open bolls and the branches still remain healthy and the leaves still remain green. Early withering types have leaves that have already aged and dropped off by this time, or because of the spreading of withering leaves disease, have withered and wilted. Some of the early maturing varieties of the present time possess this weakness to varying degrees. Therefore, the potential for increasing the yield is limited and the quality of the fiber is affected. The degree of maturity is poor and the strength of the fibers is insufficient. According to data of the regional experiments in the Yellow River valley from 1973 to 1978, the relationship between the strength of the single fiber and the coefficient of maturity are very closely related. The correlation coefficient is +0.746, reaching the 1 percent outstanding standard ($r_{0.01} = +0.561$). The degree of maturity is determined by the function of the leaves and the vitality of the root system during the late period of growth. Therefore, materials that easily wither and wilt early obviously do not satisfy the requirements for selection of high yielding varieties of superior quality and plant type.

Although the high yielding varieties at present such as "Lumian No. 142" and "Xuzhou 142" do not have a common origin and are selectively bred differently, the former is a derivative line of "Delta Pine 15," and is bred by a combination of hybridization and radiation. The latter is the stoneville cotton line and is selectively bred by line. But there are many points in common in their plant type. For example, both are relatively tall plants, their fruit branches branch upward, their first fruit branch grows on a relatively high nodal position, their nodal distance on the main stem is relatively long, the number of fruit branches and the total number of fruiting nodes are not plentiful. The plant type is loose and their percentage of boll formation is high. All of these are common points of superiority.

But their common shortcoming is the function of the leaves and the vitality of the root system during the late period of growth are not strong and they easily wither early. The positive and negative sides have provided us with a beneficial guide to the formation of a comprehensive and high yielding plant type.

II. Structure of Yield

The three factors that constitute the yield of ginned cotton are the number of bolls in a unit area, the weight of the single boll and the gin turnout. Breeding of high yielding varieties, seen from the point of view of the structure of yield, is to seek the genetic combination that yields the greatest mathematical product of the three factors that constitute the yield. To realize high and stable yields of cotton, the total number of bolls must be increased, the weight of the bolls must be increased, and the gin turnout must be increased so that the three are coordinated and unified. A superior variety must first have good comprehensive characteristics. Unilateral pursuit of singular characteristics will not easily realize high and stable yields.

(1 Boll Forming Property: To most of the cotton varieties at present, the major factor limiting their potential of yield is the boll forming property. Whether in the regional experiments of 6 years in the Yellow River valley or in the regional experiments of 2 years in Jiangsu Province, the yield of ginned cotton and the number of bolls formed on the single plant are closely related. The correlation coefficients are +0.547 and +0.820 respectively. If the boll forming property can be further elevated and the shedding percentage can be lowered, the key is to change the plant type. This means placing emphasis on strengthening the production, transportation, sale of photosynthetic products of the colony, and designing a model of a kind of ideal plant type according to regional ecological conditions and combining the strong and the weak properties of boll forming and intensifying selection.

(2 Weight of the boll: The weight of the boll is an important factor in the formation of yield. Several years ago, the yield of some of the high yielding counties in the south dropped mainly because of a sharp reduction in the weight of the boll. For example, in Nanhui County, the yield of cotton surpassed 100 jin in 1964, but during the 14 years since, fluctuation in the unit area yield was 62 percent. The total number of bolls per mu fluctuated 36 percent. The weight of the bolls fluctuated 57 percent. The gin turnout fluctuated 8 percent. Viewed in general, the change in the weight of the bolls was the greatest, annual differences reached 1.9 grams. This of course is the result of the effects of weather and conditions of cultivation. But it also reflects the instability of the weight of bolls of present varieties. Selective breeding of varieties with a more stable and heavier boll weight is an important aspect in the breeding of high yielding cotton. Surprisingly, the regional experiments of 6 years in the cotton regions of the Yellow River valley showed a negative correlation (-0.388). This does not mean that the weight of the boll is immaterial, it exactly indicates that there is a great potential here. For example, if "Xuzhou 142" is

cultivated on a basis to assure a stronger boll forming property, its boll weight can be increased from 4.58 grams (the average of 3 years of regional experiments) to the level of "Yimian No 2" (of a boll weight of 5.22 grams) which was part of the regional experiment at the same time. This will produce an increased yield of one and a half fold. This shows elevating the comprehensive bumper yield characteristics of the present superior varieties has a great potential, and this is a practical road to further raising the yield.

In selecting the boll weight, emphasis must first be placed upon uniformity of the shape of the boll and a high average boll weight of the entire plant. This means to pay attention to the whole property of the bolls, and especially the selection of the cotton bolls of the upper part must not be neglected. Heavy cotton bolls on the upper part not only benefit high yield but are also indicators of full development of fibers. Secondly, emphasis must be placed on the selection of oval shaped bolls and bolls with a shining surface. The pericarp of the cotton boll must be thin, rotten bolls must be light, and types with large bolls and wide open bolls must be selected. According to the results of joint investigation of high yielding counties producing a high yield of cotton in 1977, the percentage of rotten bolls in the south was very high. According to statistics of investigation of 40 cotton fields, the average percentage of rotten bolls was 12.5 percent, and some was as high as 22.6 percent. Reducing the percentage of rotten bolls should catch the attention of breeding workers. Thirdly, selection must be conducted along with ecological conditions. Important ecological factors that affect the weight of the cotton boll at different regions should be analyzed. The type of development of cotton bolls which does not react sensitively to external conditions should be selected. In addition, the weight of the cotton boll and the nodal position where it grows are very closely related. In general, the inner circle of bolls are heavier. This indicates that in selecting the plant type, the varieties that have a weak horizontal growth and have short fruit branches should be selected.

(3 Gin turnout: Under ordinary conditions, a high gin turnout means a high yield. Gin turnout as a characteristic is relatively stable and to a larger degree is determined by the characteristics of the variety. Varieties with a high gin turnout often have shorter lint, pappi are few, and the number of sterile seeds is large. Of course, all corresponding characteristics are relative. For example, such superior varieties as "Simian No 1" and "Xingtai 6871" have overcome the conflict between the length of the lint and the gin turnout rather well. The gin turnout of "Simian No 1" was the most among all varieties participating in the regional experiments in Jiangsu Province in 1973-1975, averaging 40.46 percent, and the length of the lint averaged 31.13 millimeters. In comparison, the conflict between gin turnout and pappi is more difficult to solve. The regional experiments of 6 years in the Yellow River valley all showed a negative correlation while the correlation coefficients between gin turnout and sterile seeds all were positive (Table 4). At the same time, gin turnout and the strength of the single fiber also showed a negative correlation. These are all worthy of attention in selective breeding of varieties with high gin turnout.

Table 4. Correlation Coefficients Between Gin Turnout and Quality of Fiber, Seed Pappi, Percentage of Sterile Seeds

(2) (3) 年份 项目	1973	1974	1975	1976	1977	1978	(9) 平均
(4) 籽 指	-0.901	-0.363	-0.254	-0.280	-0.408	-0.717	-0.497
(5) 不孕籽	+0.016	+0.581	+0.553	+0.811	+0.912	+0.92	+0.597
(6) 主体长度	-0.243	-0.113	+0.611	+0.317	0.672	0.185	-0.954
(7) 单 强	0.256	-0.305	-0.330	+0.164	-0.79	-0.925	-0.291
(8) 细 度	-0.356	+0.009	+0.203	+0.099	+0.133	+0.070	+0.976

Key:

- | | |
|-------------|-----------------------------|
| 1. Year | 5. Sterile seed |
| 2. r values | 6. Length of main body |
| 3. Items | 7. Strength of single fiber |
| 4. Pappi | 8. Fineness |
| | 9. Average |

Selective Breeding of High Yielding Superior Varieties

There have been many new developments in modern breeding techniques. But the fundamental method of solving the problems of breeding high yielding superior varieties is still mainly the ordinary method of breeding. The results of ordinary breeding may be great or small. The key is a rich source of materials and a wide genetic base. Only with these can the results be continuously raised.

1. Gather widely and expand the genetic store

Breeding practice proves that without new materials, new types cannot be cultivated and breakthroughs cannot be discussed. The reason why most of the varieties bred by ourselves domestically all have weak fiber strength is because the genetic base is narrow. The average strength of the single fiber of the 22 varieties bred by ourselves and used in the regional experiments of the Yellow River valley from 1973 to 1977 was 3.763 grams. No progress was made when compared to the eight varieties bred by ourselves and used in the regional experiments of the Yellow River valley from 1959 to 1965. The fundamental reason was due to the common source. An absolute majority of them came from the two big lines of delta pine cotton and stoneville cotton. In addition, the former, regardless of line selection, was still bred from hybrids. The quality of the fiber did not vary much. The average strength of the single fiber of the 13 varieties selected by line was 3.785 grams and the range of variation was from 3.19 grams to 4.25 grams. The average strength of the single fiber of the nine varieties bred from

hybridization was 3.621 grams and the range of variation was from 3.12 grams to 4.07 grams. The reason was similarly due to common origin. Of them, 18 varieties belonged to the two large lines of delta pine and stoneville cotton, constituting 82 percent. The remaining four varieties were also old cotton varieties that came from the United States [diguo mian and kezi mian]. In fact, to break through this weak link of the strength of fiber, much emphasis must be placed on seeking and creating new genetic mutants, expanding the sources and origin of varieties and quality, including the launching of work in transferring wild varieties and qualities of the cotton family. For example, the G. Thurberi cotton, the G. anomalum cotton and the G. raimonnii cotton are all varieties possessing very strong fibers.

2. Use Intermediate Materials and Raise Quality Gradually

In the course of breeding, regrouping and mutation of genes frequently produce various kinds of valuable materials that possess qualities superior to the parents. We should be skilled in discovering and seizing signs of new development. We should grasp secondary materials with key characteristics that satisfy the requirements and use the secondary materials to seek comprehensive materials and continue to accumulate materials. Using this kind of intermediate materials to produce combinations takes advantage of the benefits of single cross and multiple cross. This will enrich the genetic base and also shrink the range of variation of the offspring and shorten separation of generations. Actually, this involves dividing the work in selective coupling of hybrid combinations into two or several steps and thus reducing blindness in work. The Shaanxi Cotton Research Institute is currently using this method to breed a series of disease resistant and high yielding varieties. When they began to breed disease resistant varieties, the first problem encountered was the scarcity of disease resistant parents and they had outstanding shortcomings. For example, "Shehong 52" has a low gin turnout, "57-681" matures late, "Pengze No 1" is tolerant to disease but has short lint, etc. Later "Pengze No 1" and "Xuzhou 209" were crossed to produce the hybrid "Shaanmian No 3" with a neat plant type and tenacious and firm stem. Its leaves lacked deep grooves and the rims of the leaves were wavy. It was a new type. Later it was used as a parent to successfully breed "Shaan 401" and "Shaan 112," and a new situation in breeding of disease resistant varieties was created. Still later the new strain "3619" was bred. It possessed the ancestry of Asian cotton. Its leaves were dark green. Its photosynthetic ability was strong. It was highly resistant to wilting. As a parent it bred "Shaan 717," and the level of disease resistant varieties was further raised.

III. Expand the Colony, Observe More and Select Finely

One of the difficulties in hybridization and breeding of cotton is that the colony is much smaller than that of cereal crops. The size of the colony has two meanings. One is multiplicity of quality. The second is varied quantities of the same quality. To realize a breakthrough, combinations should first be grasped and the type should first be grasped. Then outstanding and superior combinations and new types should be discovered among large quantities of combinations. Then, the colonies of these materials

should be expanded and more observations should be made and selection should be made carefully. Determination and screening of the quality of the fibers must be especially intensified.

IV. Select the Superior From Among the Superior and Intensify

Continuous Selection Among Latter Generations

The potential in selection among later generations is great. The achievements in line breeding has demonstrated this point long ago. Since large amounts of new varieties can be selected from among ordinary varieties, selection from among late hybrid generation materials of course is even more effective. Cotton is an ordinary cross pollinating crop. Its economic characteristics are complex quantitative characteristics and emphasis should be placed on continuous selection. In fact, "Heshanmain No 1" was selected from "Jinmian No 1," "86-1" was selected from "Shaan 65-141," and all were selected from new varieties (lines) bred by hybridization and they all greatly surpassed their original varieties.

9296

CSO: 4007

BRIEFS

SILKWORM GENE CLONING--Shanghai, 22 Mar--Chinese scientists engaged in genetic engineering have reproduced a silkworm gene inside a bacillus as a first step towards the artificial production of silk. The achievement was announced recently by Professor Li Zaiping of the Molecular Genetics Laboratory at Shanghai Biochemistry Institute. Professor Li said that he and a team of scientists have conducted a series of tests that confirm the development. Genetic engineering is one of the major research projects being pursued by China's scientists. Professor Li's team has been working on the silkworm project for two years. The scientific description of their achievement is the cloning of the Eukaryote chromosome gene of a silkworm inside the bacillus *Escherichia coli*. Scientists in other countries have done research into the genes of the domestic silkworm which feeds on mulberry leaves. The subject of the Chinese research is the wild silkworm (*Philosamia cynphiala ricini*) which feeds on the leaves of the castor oil plant. The Chinese scientists have found structural differences in the genes of the two types of silkworm. They say the characteristics of the genes of the wild silkworm give them a better chance of finding the control unit of gene expression. [Text] [Beijing XINHUA in English 1228 GMT 22 Mar 80 OW]

NATIONAL TIMBER OUTPUT--As of 12 December, our country's forest front had already accomplished the national timber production mission by exceeding the quota ahead of scheduled time. According to survey, the rate of timber cut meeting the qualitative and quantitative qualifications rose from last year's 51 percent to 87.4 percent. [Text] [Guangzhou NANFANG RIBAO in Chinese 28 Dec 79 p 4] 8953

CSO: 4007

INITIAL SOLUTION TO FERTILIZER WASTE FOUND

Water Route Shipping Successful

Guangzhou NANFANG RIBAO in Chinese 28 Dec 79 p 2

[Text] This newspaper's reporter Gong Zhijin [7895 1807 3866] reported: After a trial shipping through water route, chemical fertilizer produced by the Guangzhou Petroleum Chemical Workers, starting from the 21st, with the coordination of the Departments of Railway, Seaport, Shipping, and Sales, is being packed, hoisted, and shipped to all the areas in this province via water routes. This was an effort put forth by all the parties concerned to combat the serious waste of the fertilizer stagnating in the factory.

On 9 December this newspaper disclosed a great waste of urea produced by the Guangzhou Petroleum Chemical Works due to shipping incapability. This was brought to the attention of the concerned parties. Under the leadership of the Provincial Economic Committee, after repeated consultation between parties involved, it was decided that, on the 17th of his month, water route shipping from Huangpu New Port was to be tried. This reporter, on that day, following the leading comrades of the Provincial Departments of Construction, Communications, Finance, and Trade, visited the trial water route shipping. The workers carried the packed chemical fertilizer from the workshop to the large nylon networks placed in the cars of the train. Each network contains 30 bags, referred to as a group. A car of 50-ton loading capacity can contain 40 networks.

Fifty cars, a total of 250 tons, were loaded in only 4 hours that day. When the tractor truck pulled the fertilizer cars to the pier in the port area, a cargo ship from the Foshan area had already docked by the pier. In a short while, just as the command whistle sounded, three wheel cranes safely and orderly lifted the networks and placed them in the cargo hold where the workers standing by put away the networks and stacked the fertilizer. The entire shipping process was coordinated very well in every aspect. Everybody agreed that the trial shipping was carried out smoothly and successfully. After seeing this, a comrade coming together with this reporter said to the reporter with emotion, "This was the first train shipping chemical fertilizer to New Port since the Petroleum Chemical Works went into operation a year ago.

This was also the first time that chemical fertilizer was transported through this feeder railway especially built. This feeder line is only 9 kilometers, but it was wrangled about back and forth for a year before being opened for traffic."

Based on the successful trial shipping, it was decided by all the parties concerned that starting from the 21st, in addition to continuing its fertilizer shipping northward via Beijing-Guangzhou Railroad, the Petroleum Chemical Works will ship 250 tons via waterway through Huangpu New Port. Comrades of the parties concerned pointed out to this reporter that shipping volume could be increased if all the parties concerned were well coordinated. Thus, part of the shipping problems involved in provincial distribution of the fertilizer produced by the Petroleum Chemical Works can be resolved.

The successful water transport has broaden people's horizon. It is explained: Ways to overcome transport difficulties can always be found so long as all parties concerned are cooperative and supportive. Originally, some people did not approve of using networks to hoist. They thought the bag would break and the fertilizer would fall all over the place. But during the trial shipping, when baggages were hoisted to the ship from the train, wastage was only 0.8 percent. Besides, the feeder line in the port area is only 450 meters long. It has been built for almost a year. Some departments emphasized that the track was not good enough for transport. During the trial transport, after a crack in a slip point was welded, the heavy cargo train with five cars was finally driven in. (Naturally the track requires further improvement. In the past several days the engineering department of the railway has already specially dispatched repair personnel, with tools and luggages, stationed in the port to inspect and repair the railroad. It is believed the problem will be resolved in a better way.) This actual case explains that so long as all parties concerned regard the four modernizations as important tasks, and when they encounter problems, they do not wrangle with each other, don't beat around the bush, but instead, positively grope for practical solutions, some difficult problems could be easily resolved.

Of course this trial shipping was only a good start. Someone worries that people may still wrangle over trivial things in the future. This will depend on how we work. I only hope all units continue to foster the spirit of coordination lest this event with a good start come to a premature end.

After some 10 days rush shipping, more than 10,000 tons of fertilizer accumulated in the factory have been basically shipped out. But the management work within the factory has not kept pace with shipping. On the day of trial shipping comrades from all units visited the product packing department, and they saw food remnants and cigarette butts all over the floor. A thick layer of urea spread over the warehouse was also not retrieved. Besides, group hoist requires a certain meshed mechanism of loading and unloading. Following the gradual solution to the external contradictions related to shipping, the internal mismanagement and the contradictions of loading and unloading mechanism have surfaced. People hope that the factory will look

into this problem seriously and take swift measures for a solution. They also hope that with the support of the parties concerned in Guangzhou City, the shipping team will be reorganized so as to raise shipping quality and reduce damage.

Human Factor Hampers Progress

Guangzhou NANFANG RIBAO in Chinese 28 Dec 79 p 2

[Text] When this newspaper disclosed that the urea produced by Guangzhou Petroleum Chemical Works could not be shipped in time, the report was brought to the broad public's attention. The problem was swiftly resolved. In the process, the factory and the Departments of Port, Shipping, Railroad, and Sales, all made a great effort. They deserve praise for their great spirit of coordination.

"Coordination is a type of productive force." The well-known saying of Marx has been proved to be true once again. This time, to resolve the shipping problems of fertilizer, the work force was not increased, no extra money was spent, and no facilities were added to the port. Each day, 250 tons of chemical fertilizer can be shipped via water route. If there were even better coordination between parties involved, a train of chemical fertilizer could have been added daily and shipping quantity would have been doubled. Thus, the shipping problem of chemical fertilizer could have been basically resolved. You see, this problem has been argued over back and forth for a year without a resolution. When all the parties concerned sat down and seriously studied, with resolute determination and good organization, a preliminary solution was found in a little over 10 days. This is just like the saying, "Wearing out the iron shoes, one still could not find it. But all of a sudden, it was found without taking much time." In the past, the reason to "wear out iron shoes" was due to different ideas and the long wrangling. A solution found "without taking much time" today was the result of our great coordination.

Now, in our economic reconstruction work, there are a lot of problems and difficulties. Some of them cannot be resolved temporarily due to the limited natural resources. But a lot of the problems were caused by human factors. Such problems include superfluous office structures, argument over trivial matters, dilatory work style, and irresponsibility. Judging from the solution to the shipping problems of the chemical fertilizer, it should not be too hard for us to overcome the difficulties and to resolve the problems of our work provided we focus on the whole situation of the four modernizations and work seriously and responsibly. Unfortunately some of our comrades lack this spirit. When they encounter problems, they delay and postpone as long as they can. They have become typical "responsibility shirking experts." This is the evil result of the way in which Lin Biao and the "gang of four" tried to sabotage the party for many years. This is also the bad habit left over by the backward life style of the past thousands of years. This has to be discarded immediately and replaced with a united, alert, conscientious, responsible, practical, and hard-working work style.

It will soon be the 80's. We give our best regards to the comrades on the economic front and wish them to be the promoters of the four modernizations, not the disgusting "responsibility shirking experts." We should welcome the arrival of the new era with a new mental outlook.

8953

CSO: 4007

KAIPING COUNTY HAS BUMPER HARVEST

Guangzhou NANFANG RIBAO in Chinese 26 Dec 79 p 1

[Text] The well-known country of overseas Chinese--Kaiping County--had a bumper harvest this year. The total output of the county is 116 million jin more than last year. Per unit area yield is 256 jin over last year. Both the total output and per unit area yield top all previous records. Timber, animal husbandry, and fishing all increased a great deal, overfulfilled the plan that the county committee proposed at the beginning of the year, "Foodstuff be increased by 110 million jin, per mu yield be reached 1100 jin, and per capita yield be reached 110 jin." Since the Great Cultural Revolution, every year Kaiping had a plan to increase agricultural output. Only this year was the plan realized. In summarizing the bumper harvest, both cadres and commune members attributed the successful increase in production plan to "the party, the people, the good weather, plus the hard work."

This year, under the guidance of the Third Plenary Session of the party, the county committee changed its past work style of "much shouting but little action." They went down to the grassroots units to investigate and summarized the experiences and lessons from past years' production, then, together with the masses, made a practical increase production plan. Following that, the county committee managed well and carried out policies regarding cadres, overseas Chinese, and village economics. Altogether, 930 cadres persecuted by the ultra-leftist line of Lin Biao and the "gang of four" were rehabilitated. Appropriate work was arranged for them; 250 cadres in the prime of their life and with village work experience were assigned to communes and brigades as leadership. Agricultural leadership was strengthened.

The county and commune party committee also firmly grasped the improvement work of the backward teams and the low-yield fields. Ninety percent of the poor teams, which constitute one-fifth of the county's entire production teams, have changed their looks. Some 60,000 mu of low-yield field whose annual per mu yield was below 500 jin, received treatment; this year's average increase per mu was over 300 jin, which raised the total increase for the entire county.

8953

CSO: 4007

ROLE OF DRYLAND CROPS IN GUANGDONG DISCUSSED

Guangzhou NANFANG RIBAO in Chinese 4 Feb 80 p 2

[Article by Su Qixuan [5685 0366 2467] and Jiang Tailuo [3068 3141 2867], Guangdong Provincial Agricultural Commission: "Put the Production of Dryland Grain in Its Due Place"]

[Text] Since the founding of our people's republic, Guangdong Province has made rapid progress in the grain production. However, in the 10 years of the Cultural Revolution, grain production was basically in a state of fluctuation. Previously, there was not much difference between the total grain output of Jiangsu Province and that of Guangdong Province. At present, our Guangdong produces over 10 billion jin less than Jiangsu.

Basically speaking, that the development of grain production is not fast in our province is due to the serious interference and sabotage of Lin Biao and the "gang of four," while at the same time, it is also closely related to the fact that in the overall arrangement of production, we partially laid stress on paddy-rice and neglected the production of upland crops. Before 1957, as our province paid fairly great attention to dry-grain production at that time, the potato acreage reached 14.7 million mu in that year, with an output of 2.93 billion jin (converted into unprocessed food grains, the same below); that of small upland crops of corn, kaoliang, millets, broad beans and peas reached 4.94 million mu, with an output of 382 million jin; and the combined output of potato and small upland crops constituted 15.4 percent of the total grain output of 1957. Later, the production of upland crops declined year by year; till 1978, the acreage was reduced by 6.48 million mu and output by more than 100 million jin, constituting only 9.9 percent of the total grain output. In 1979, the output of paddy increased by more than 1.98 billion jin as compared with the previous year; however, the output of potato, dry grain and wheat decreased by more than 480 million jin, affecting the fulfillment of the plan to increase grain production in that year. That the production of dryland grain could not go up not only hampered the increase of total grain output and did damage to the arrangement of livelihood for the masses, but also directly interfered with the development of animal husbandry production.

As compared with paddy-rice, the upland crops have stronger resistance against natural disasters, better stability in production and greater potential of increasing output. In hillside fields with inadequate water source and in paddy and upland fields with poor fertility, the cultivation of such crops as potato, corn and kaoliang in line with local conditions can bring into play greater economic results. At present, we should conscientiously sum up our experience and lessons learned and, while grasping well the production of paddy-rice, earnestly push up the production of dryland grains, particularly that of potato, so that our province can make a new breakthrough in grain production.

Then, what problems should be solved in accelerating the development of the production of upland crops?

First of all, it is necessary to solve the problem of understanding. Potato is the principal food of the peasants in many places of our province. Not only does it contain plentiful starch and sugar, but also its content of protein is very high. Each 5 jin of potato contains 57.5 grams of protein and 5 grams of fat, while every jin of rice contains only 26.25 grams of protein, and 1.75 grams of fat. The stalk and foliage of potato are also very good forage feeds. However, some cadres argued that the state could not procure all the potato, more output would simply be eaten by the people, without any benefit to the state. Therefore, they did not pay much attention to the development of potato production. This kind of view is not correct. Our province has a rural population of over 40 million. The broad members of rural communes and a part of the urban population are fond of eating potatoes; the problem on the disposal of the potato can be solved locally. It is the same with other upland crops. Consequently, we must grasp 'ryland grain with the same efforts as in grasping paddy-rice, resume the reduced acreage of more than 6 million mu of dryland grain, strengthen our leadership, constantly study and sum up our experience of dry-grain production, and push forward the production of dryland grain.

Second, to popularize the experience of high yielding, reform the technique of cultivation and energetically raise the yield per unit area. At present, the unit-area yield of dryland grain is very low throughout our province, that of potato converted into unprocessed food grains is only 220 jin per mu, that of other small dryland grains only about 90 jin, with very great potentials for increasing production. While grasping firmly the work of making a success of soil and fertilizer improvement, if we would introduce scientific farming and carry out technical measures of cultivation for high yielding in each production team and on each piece of farmland; we believe, our province could raise the unit-area yield of dryland grain on a large scale.

Third, to solve earnestly the problems of processing, storage and procurement. In Guangdong Province, the climate is warm and humid with plenty of rainfall, potato and the spring harvest of wheat will easily mildew and rot and go bad, affecting the commune members' enthusiasm for production. Therefore, it is necessary to solve earnestly the problem of processing and comprehensive use. In Chaoyang County, all production teams of Jinpu Commune did

the processing of potato. Last year, they cultivated more than 73 million mu of potato, with the total output of 37.5 million jin. It seems that besides using a part of the potato for direct consumption, they must also ask the research departments to study promptly and solve as quickly as possible the problem of processing the dryland grain.

9039

CSO: 4007

HAINAN ENGAGES IN SPRING FARMING ACTIVITIES

Guangzhou NANFANG RIBAO in Chinese , Feb 80 p 1

[Article by Li Tongbo [2621 6639 3134] and Huang Jianchuan [7806 1696 1557]: "Hainan Administrative District Grasps Policy and Science and Promotes Spring Farming"]

[Text] The spring atmosphere is thickening on the Hainan Island, from the depth of coconut groves on the seacoast to the densely green hinterland of the Five-Finger Mountains, from the "remotest corners of the earth" where the warm breeze caresses one's face to the scenic banks of the Ten-Thousand-Spring River, the cadres and people of various nationalities are happily engaged in the activities of spring farming. Up to the end of January, the whole island had fulfilled completely the task of sowing early rice. In counties where the farming season comes early, including Yaxian, Lingshui, Ledong, Baoting, Qionghai, Wanning and Wenchang, it has entered the brisk season of transplanting rice seedlings. At present, seedlings have been transplanted in 600,000 mu of fields, constituting more than one-half of the total area of early rice of these counties. Economic crops such as sugarcane, pepper, peanuts, rubber and lemongrass also have been planted in succession.

Last year, Hainan Island increased its grain output by more than 350 million jin as compared with the previous year, being 22 percent higher, and developed to a fairly great extent its cash crops and multiple undertakings in comparison with the previous year. As soon as the year-end distribution was concluded, all counties quickly held their meetings of outstanding persons and model workers, summed up and examined the work of the whole year. This summing up helped all people to realize that the main reason they could develop agriculture more quickly last year was that they depended on policies to arouse the enthusiasm of the production teams and peasants, and depended on scientific farming to win an overall bumper harvest of grain and cash crops. At the same time, they also understood profoundly that as the influence of the evils of the ultra-left line was very penetrating since many years ago, there are still very great potentials in whether to bring into play the power of the policies, or to give play to the role of scientific farming. Therefore, this year at the very beginning of preparatory farming,

the members of the district party committee and the cadres of all counties and communes went down to the first line of production, together with the masses discussed matters of vital importance to win a bumper harvest in agriculture this year, and decided to further implement the party's policies in the following aspects: First, to further criticize the ultra-left line, positively carry out activities of talking about and competing for wealth, and ask all communes, brigades and production teams to make plans for achieving "quick, great and lasting wealth" and strive to be models of "wealth." Second, to reaffirm the production teams' power of decision making. Under the precondition of pledging to fulfill their tasks of state procurement of grain and make proper arrangement for commune members' ration grain and for raising feeds, the production teams have the power to define their plans of cultivation in line with local conditions, what and how much to cultivate may be decided upon by themselves. They have the power to stipulate measures for increasing production, when to sow seeds and how to grow, fertilize and manage crops are all their own responsibilities. Labor force and funds are all under their control. Third, to further implement and perfect various systems of job responsibility for production, and promptly help and correct individual cases of distortion. Fourth, there will be no change of the policy of state procurement of grain by "one fix for five years" and the policy of awarding the sales of sugar, edible oil, three fowls, cattle and sheep to the state. In places with favorable conditions, either collectives or individuals should be encouraged to keep cattle and sheep, without any restriction of their numbers. Fifth, to abolish all rules and regulations laid down in the past by the district administration or by the counties, not in line with the spirit of the Third Plenary Session of the 11th Party Central Committee. This clarification of policies greatly aroused the enthusiasm of the masses in production. In counties such as Qiongzhan, Qiongzhai, Qiongzhang and Wanning, many communes and production teams changed their wrong practices of the past of destroying forests, economic crops and animal husbandry, caused by unilaterally grasping foodgrain, and readjusted the overall arrangement of agricultural production by proceeding from reality. The peasants were very pleased with this change. After the readjustment throughout the island, this year they have decided to change to the cultivation of peanuts, sugarcane and other cash crops in the 360,000 mu of very low-yielding paddyfields.

In the work of preparatory farming and spring plowing, the cadres and masses of various nationalities paid great attention to scientific farming, and firmly grasped the two key measures of seasonal work and improved varieties of rice. Beginning from "Slight Cold" (the 23rd solar term), the entire district sowed 45 million jin of rice-seeds to insure the timely transplanting of seedlings in the 2.2 million mu of paddyfields with water for irrigation. Before spring sowing, all the county and commune agricultural institutes and stations made positive efforts to recommend improved varieties of seeds to communes and production teams. This year, the entire island sowed more than 70 percent of seeds of such improved varieties as the "gui chao" [2710 2600], "ke zi [4430 1316] 17" and za you" [7177 0327]. To insure the implementation of measures for increasing production, all counties also further set up and perfected the organization of agricultural scientific networks and stations;

most commune scientific stations augmented their technical personnel. In such counties as Baisha, Ledong, Wenchang and Wanning, the leading cadres even eagerly carried out activities of operating high-yielding fields, experimental fields, strain fields or high-yielding plots to set themselves as an example for the masses. At the same time, all counties also organized working forces to build water conservancy projects, fight drought and accumulate manure and make compost with all-out efforts.

9039

CSO: 4007

GUANGDONG

BRIEFS

FEW SEEDS, LARGE RETURN--A jin of improved varieties of rice seeds yielded 4,342 jin and 7 liang of rice. This outstanding record was this year's late rice produced by the agricultural group of Lizhitang Production Team, Lizhidun Brigade, Fucheng Commune, Lianjiang County. The rice seeds were Baoxuan No 2 Original Seeds, a type of high-yield late rice from the Yulin area of Guangxi. The seedlings went through split tillering and transplanting twice and were transplanted in 6.8-mu rice field by using the double-planting method. Except for the seeds put away for next year's late planting, the rest were distributed to the other communes and brigades. [Text] [Guangzhou NANFANG RIBAO in Chinese 21 Dec 79 p 1] 8953

OVERSEAS CHINESE FARMS HARVEST--All the overseas Chinese farms of the Guangdong Provincial Overseas Chinese Farms Administration received pleasing accomplishments in agricultural production. Both the annual per unit area yield and total output of foodstuffs topped all previous records. It is estimated that the total output reached 175 million jin, 10.3 percent over last year. Total output of sugar cane, both total output and per unit area yield of rubber and pepper, and number of live pigs all topped all previous records. [Text] [Guangzhou NANFANG RIBAO in Chinese 26 Dec 79 p 1] 8953

HAINAN DROUGHT, RICE TRANSPLANTING--The Hainan Regional CCP Committee regards resisting drought, crash transplanting, protecting seedlings and reaping a bumper harvest of early rice as the current central tasks. By 2 April, 2.43 million mu of seedlings were transplanted throughout Hainan, accounting for 84 percent of the planned areas of early rice. Since last autumn, rainfall in Hainan declined by 70 to 80 percent over the previous years. After spring festival, eight standing committee members of the Hainan Regional CCP Committee led a number of leading cadres to help the leadership organs in various counties resist drought and crash transplant. The Hainan Regional CCP Committee has provided 1.62 million yuan for resisting drought. The counties have also allocated 1.58 million yuan from the agricultural banks and local financial revenue for resisting drought. [Guangzhou Guangdong Provincial Service in Mandarin 2330 GMT 3 Apr 80 HK]

SPRING FARMING--In January and February 1980, 81,100 tons of chemical fertilizers were produced throughout Guangdong. This is an increase of 26.6 percent over the corresponding period of 1979. The agricultural machinery enterprises produced popular products including hand-guided tractors, small water-wheel machines, small water-wheel generators and agricultural machinery parts. At the same time, these enterprises have also provided mobile repair services to provide all-round services for agriculture. The electricity supply departments have allocated electricity from the cities and key industrial enterprises to maintain the level of supplying 3 million kilowatt-hours of electricity daily during spring farming from 11 March to 10 April. [Guangzhou Guangdong Provincial Service in Mandarin 1130 GMT 15 Mar 80 HK]

DANGEROUS FERTILIZERS FROM INDUSTRIAL WASTE--Since the beginning of this year, many commune production teams went to factories and mines in Guangzhou and other places, carried back some industrial waste dregs and liquid, and spread them over the fields as fertilizer. Our institute's laboratory analyzed these wastes and found that most of them were compounds containing large quantities of heavy metal elements and poisonous substances, and very little nitrogen, phosphorus or potassium. On the first occasion of their use, they may help slightly to increase the output of crops. When they are used more frequently, they will increase environmental pollution and greatly harm human health. Moreover, after two or three times of use, the crops will be seriously suppressed in growth, and sometimes may even be lost entirely in harvest. For years, no crops can be sown again in these fields. We have already discovered many instances of such damage done to crops, and must pay serious attention to this matter. We hope that no rural commune production teams will ever carelessly use industrial waste dregs and liquid as fertilizers, to avoid any damage to crops in growth stages. [Text] [Guangzhou NANFANG RIBAO in Chinese 2 Feb 80 p 2] 9039

CSO: 4007

GUANGXI

BRIEFS

GUANGXI COUNTY PIGS--In 1979, the number of pigs raised in Lipu County increased by 10 percent over 1978. By 10 March 1980, the people in this county have overfulfilled the tasks of pig procurement for the first quarter by 63.5 percent ahead of schedule. This was equivalent to 63.2 percent of the year's tasks. [Nanning Guangxi Regional Service in Mandarin 1130 GMT 9 Apr 80 HK]

CSO: 4007

CANGZHOU PREFECTURE REPAIRS IRRIGATION EQUIPMENT

Beijing RENMIN RIBAO in Chinese 21 Jan 80 p 2

[Article: "Cangzhou Prefecture Organizes People to Go to Communes and Brigades to Repair Drainage and Irrigation Machinery to Combat and Guard Against Drought"]

[Text] Cangzhou Prefecture in Hebei has actively begun a drive to combat drought, organizing agricultural machinery repair personnel to attack repair of irrigation and drainage machinery. This drive promoted the combating of drought and protected wheat crops and spring planting.

Cangzhou Prefecture has been experiencing a dry spell since last fall and the machinery in some places is worn out because of constant use and poor management, so that damage to drainage and irrigation machinery, especially diesel engines, is severe. In this prefecture, over 14,000 machines are still operating, though in poor shape, over 8,200 are out of order, and in some places over 30 percent are inoperative, this seriously affects winter and spring work to combat drought.

To deal with this situation, the Cangzhou Prefectural Party Committee and administrative offices made the inspection and repair of drainage and irrigation machinery an essential task. Prefecture, counties and communes organized small repair teams to go to communes and brigades to inspect and repair machines one by one. Suning County in this prefecture has a lot of drainage and irrigation machinery, so each commune and brigade organized an inspection and repair team. With the effort of cadres at various levels and agricultural machinery repair personnel, over 8,400 diesel engines and irrigation and drainage machines have been repaired in this prefecture, and this has furthered the development of the work against drought. There are now 3.89 million mu of wheat and 570,000 mu of fallow land under irrigation in the prefecture.

8226

CSO: 4007

HEILONGJIANG

BRIEFS

HARBIN MUNICIPALITY VEGETABLES--Harbin Municipality, Heilongjiang, this year planted 129,000 mu of summer-ripening vegetables. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 12 Apr 80]

NENGJIANG PREFECTURE SPRING FARMING--Nengjiang Prefecture, Heilongjiang, had irrigated 300,000 mu of cropfields as of 10 April. Spring drought was severe this year affecting large areas of cropfields. Now 3,543 powered wells are being used to irrigate the cropfields at the rate of irrigating 15,000 mu each day. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 12 Apr 80 OW]

COUNTY INDUSTRIAL CROPS--Hailun County, Heilongjiang, this year planted 400,000 mu of land to industrial crops. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 12 Apr 80]

SUGARBEET SOWING--As of the end of March, Heilongjiang this year had sown 3.1 million mu of fields to sugarbeets, 40 percent larger than the province's sugarbeet acreage last year. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 12 Apr 80 OW]

WHEAT SOWING--As of 10 April, Suihua Prefecture, Heilongjiang, had completed its wheat sowing task and begun its work of sowing other crops. This year the prefecture spent only a half month to complete sowing of wheat on more than 2.3 million mu of fields. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 14 Apr 80]

SPRING SOWING--Following the snow season, all counties in Heilongjiang's Songhuajiang Prefecture have leveled farmland totaling some 8.4 million mu, and sowed field crops to some 500,000 mu. This year, about 10 million mu of farmland in the prefecture suffered from drought. Up to now, Bayan County has planted hemp, beet, corn and rice over some 8,500 mu. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 15 Apr 80]

CSO: 4007

XINXIANG PREFECTURE BUILDS MORE WATER WELLS

Beijing RENMIN RIBAO in Chinese 21 Jan 80 p 2

[Article: "Hue, Xiuwu and Ji Counties Actively Channel and Store Water to Combat Drought and Strive for a Bumper Crop by Developing the Potential of Outfitting Projects and by Undertaking Small-Scale Water Conservancy Projects in a Big Way"]

[Text] Last year there were droughts in both autumn and winter in Hui, Xiuwu and Ji counties in Henan's Xinxiang Prefecture. The reservoirs ran dry and the water table dropped severely, adversely affecting the normal growth of wheat. In the face of severe drought, the county party committees of the three counties mobilized and relied on the masses, developed the potential of outfitting projects as the main thing, undertook in a big way small-scale irrigation works which would require small investments and would produce an effect quickly, and employed every possible means to unearth water sources to combat and guard against droughts and to secure a bumper crop.

Proceeding from the need to combat drought, the three counties launched their water conservancy projects and adopted many effective methods: they equipped, rebuilt and cleaned out old wells and sank new wells to fully develop and utilize ground water; they dammed up underground rivers, and dug up mountain streams, carrying out the method of combining springs and [pumping] stations, and combining natural-flow irrigation and irrigation by lifting water to increase volume of water; they built pumping stations to lift the water up hills; they worked hard at building small-scale water channeling and storing projects. In the communes and brigades of Xiuwu County, which had a serious lack of water, every brigade had cisterns and ponds and every house had a cistern; they channeled in more water from rivers and large-scale irrigation districts outside the county. They improved management and adopted the measures of lowering pumps in wells and extending ditches in an effort to expand the irrigated area.

Now Hui, Xiuwu and Ji counties are continuing to improve their water conservancy conditions in conjunction with agricultural capital construction and have already completed one group of small-scale water conservancy projects of pump wells, motorized irrigation stations, ponds and irrigation ditches, which have been beneficial to combating drought.

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CSO: 4007

HUBEI

BRIEFS

EGG PRICES--Effective 21 March, the price of fresh eggs in Hubei will be readjusted. The purchase price of chicken eggs will be readjusted from 92 yuan 7 jiao per 100 jin to 80 yuan 7 jiao, a decrease of 12.94 percent. The purchase price of duck eggs will be 6 yuan per 100 jin lower than chicken eggs. The selling price of chicken eggs will be readjusted from 102 yuan 2 jiao per 100 jin to 93 yuan 5 jiao, a decrease of 8.51 percent, while the selling price of duck eggs will be 6 yuan lower than that of chicken eggs. The readjustment of the egg prices conforms with the change in weather which affects the quality of eggs. [Wuhan Hubei Provincial Service in Mandarin 1100 GMT 20 Mar 80 HK]

CSO: 4007

BRIEFS

CIRCULAR ON VEGETABLE SUPPLIES--The Hunan Provincial People's Government recently issued a circular, calling on all prefectures and municipalities to immediately adopt effective measures to quickly improve the current shortage in vegetable supplies. The circular called on all places to firmly grasp the opportune time and crash plant vegetables so as to increase the quantities of vegetables that go to the markets. [HK251115 Changsha Hunan Provincial Service in Mandarin 2315 GMT 15 Mar 80 HK]

VEGETABLE SHORTAGE--Hunan is in short supply of vegetables due to bad weather. The vegetables available in the markets in March this year were sown last winter during which there was a prolonged drought. From January to present, the province also experienced low temperatures and heavy rain. To solve the problem of a vegetable shortage, it is necessary to actively import vegetables from other provinces and municipalities. [Changsha Hunan Provincial Service in Mandarin 2315 GMT 19 Mar 80 HK]

SPRING FARMING--The prefectures, municipalities and counties in Hunan have sent over 22,000 office cadres to the rural areas this spring to implement the party's principles and policies and whip up an upsurge of spring farming. There are now some 100,000 state cadres working in the rural areas of the province. Last year 20,600 production teams in Hunan achieved a net average income of over 150 yuan per person, while the net average income was less than 40 yuan on 10,060 production teams. The cadres have paid attention to encouraging rich teams to become still richer and poor teams to work hard to improve themselves. They have also taught the peasants to follow the socialist road and rely on the collective to achieve prosperity for all. Some 13 million laborers are now engaged in spring farming in the province. [HK300744 Changsha Hunan Provincial Service in Mandarin 2315 GMT 29 Mar 80 HK]

CSO: 4007

JIANGSU

OUTSTANDING RICE PRODUCTION RECORDED

Bieijing GUANGMING RIBAO in Chinese 7 Feb 80 p 1

[Article by Chi Bu [6375 1580]: "Jianhu [1696 3275] County Plants Large Area in Hybrid Rice; North Jiangsu Catches Up With South of the Long River, 'Two Crops Beat Three Crops'"]

[Text] Jianhu County, Jiangsu Province, which is located north of the Long River, last year planted 450,000 mu in a hybrid paddy rice which produced an average of more than 900 jin per mu, including 260,000 mu which produced more than 1,000 jin per mu, realizing a dream of "North Jiangsu catching up with south of the Long River and two crops beating three crops."

Before they planted hybrid paddy rice, Jianhu County had test-planted double-crop rice for 5 consecutive years hoping to increase production by achieving 3 crops; but, because of weather, soil, labor and economics, the output was not high. Later, they tested hybrid paddy rice and discovered this rice had a developed root system, strong tillering characteristics and large ears. So, the county committee mobilized all the county's agricultural scientific and technical personnel and cadres and commune members to learn hybrid paddy rice planting techniques. They stopped raising rice seedlings in the open and raised them in greenhouses, thus resolving the problem of rice seedlings damping off in early spring, and they worked out technical measures suited to local conditions for soil preparation and planting techniques so that early-, mid- and late-crops achieved balanced increases in production.

Jianhu County produces mainly paddy rice. Before 1977, annual grain production per mu had never exceeded 1,000 jin--400 jin short of the high paddy rice producing Suzhou [5685 1558] Prefecture south of the Long River. In the past 2 years, because the area planted in hybrid paddy rice had been increased, gross output of grain has increased from more than 600 million jin to over 900 million jin, so that in the 2 years the increase in gross output of grain exceeded that of the past 20 years. Average annual production of grain per mu by the summer and autumn plan has exceeded 1,600 jin; in terms of gross output, the beyond total cultivated land plan reached over 1,300 jin and caught up with the average output per mu in Suzhou Prefecture.

8226

CSO: 4007

AGRICULTURAL TRAINING COURSES PROVIDE SPECIALIZED KNOWLEDGE

Beijing GUANGMING RIBAO in Chinese 9 Feb 80 p 1

[Article by Shi Biao [8902 1753]: "Xuzhou [1776 1558] Prefecture Holds District and County Agricultural Techniques Training Classes"]

[Text] Xuzhou Prefecture in Jiangsu Province recently held a general agricultural techniques training class to help county, commune and brigade administrative leadership cadres acquire some specialized knowledge. Since the beginning of winter, over 9,000 cadres throughout the prefecture have been trained.

Personnel participating in the prefecture's agricultural techniques training class included 266 county agricultural deputy directors, agricultural bureau chiefs and commune directors. Fourteen specialists and technicians were invited to serve as instructors. The topics studied were mainly soils, fertilizers, paddy rice, sweet potatoes, corn, plant protection, basic knowledge and scientific techniques. Students in these training classes were brigade cadres and commune agricultural science station technicians. Many communes also trained production brigade cadres.

The prefecture committee had previously held agricultural techniques training sessions for county deputy secretaries, county agricultural bureau chiefs, and commune party committee secretaries and systematically passed on the cultivation techniques of the "three wheats." Through study, everyone learned that in order to realize China's agricultural modernization, leadership cadres must study, understand and master specialized knowledge before they can prevent rashness in leadership actions work correctly and effectively. Thus, they actively took the lead and brought the entire prefecture's cadres to study specialized knowledge and held agricultural techniques training classes at various levels.

8226

CSO: 4007

JIANGSU

BRIEFS

EARLY RICE--Intensified efforts are being made in Zhenjiang Prefecture, Jiangsu, to grasp well the transplantation of 2 million mu of early rice this spring. Sown acreage under early rice is 200,000 mu more than last year. Aside from establishing technical training classes for some 300 party secretaries at county and commune levels who are in charge of agricultural production, in late January, the prefecture has also by now trained some 180,000 backbone agro-technicians in preparation for early rice growing. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 8 Apr 80 OW]

CSO: 4007

BRIEFS

SHANGRAO AFFORESTATION--The people in Shangrao Prefecture overfulfilled this year's tasks of afforestation. At present, 518,000 mu of trees have been planted in the prefecture including 260,000 mu of timber forests, and 250,000 mu of economic forests. The commune members themselves have also planted 188,000 olive trees. At the same time, 7.2 million trees have been planted around villages and houses and along rivers and highways. In August 1979, the prefectural CCP committee held a work conference in Wannian County and studied and made plans for this year's afforestation tasks. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 3 Apr 80 HK]

EARLY RICE--By 28 March, the peasants in Yichun Prefecture have treated 50.29 million jin of early rice seeds, accounting for 43 percent of the total quantity of seeds to be treated. Shanggao and Yifeng counties have treated 70 percent of the seeds that should be treated, while Anyi, Tonggu, Fenxi and Jingan counties have treated 50 percent. The first batch of seeds that have been planted in the fields have mostly been covered with plastic sheets and other covering materials, effectively preventing seedling decay. The prefecture has also trained 40,000 personnel for cultivating seedlings and 33,000 seedling cultivation groups. [Nanchang Jiangsi Provincial Service in Mandarin 1100 GMT 3 Apr 80 HK]

CSO: 4007

QINGHAI

BRIEFS

WATER CONSERVANCY--Some 1,368 kilometers of pipes, 387 pump wells and 23 pump stations were built in the rural and pastoral areas of Qinghai Province by the end of 1979, solving the water supply for 420,000 persons and 3 million head of livestock. Since 1974, the state has invested 27 million yuan to improve water supply for 870,000 persons and 6.1 million head of animals. [Xining Qinghai Provincial Service in Mandarin 1100 GMT 7 Apr 80 OW]

YAK POPULATION--Qinghai Province has a total of some 4.8 million head of yaks, accounting for 31 percent of the total number of the world. [Xining Qinghai Provincial Service in Mandarin 1100 GMT 10 Apr 80 OW]

CSO: 4007

IMPORTANCE OF AGRICULTURAL SCIENCE, TECHNOLOGY EMPHASIZED

Shanghai JIEFANG RIBAO in Chinese 9 Mar 80 p 1

[Editorial]

[Text] Inspired by the spirit of the Fifth Plenary Session of the 11th Central Committee of the Communist Party, the Shanghai Municipal Agricultural Science Conference concluded successfully. This is the first time in the 30 years of the People's Republic that such a city-wide agricultural science conference has been called. The conference took Hua Guofeng's important remarks delivered to a symposium of agricultural science specialists at the time of the New Year holiday as its guiding thought; enthusiastically discussed the report of the municipal people's government concerning "strengthening the work of agricultural science and technology to accelerate the modernization of agriculture in the surrounding area"; heard speeches by leading comrades of the municipal party committee; and conferred awards and bonuses for accomplishments in agricultural science and technology since the national science conference, as well as awarding technical titles on a group of agricultural scientific and technical personnel for outstanding accomplishments. During the conference, the agricultural science and technology workers exchanged experience broadly put forth many valuable suggestions for advancing work in agricultural science and accelerating the development of agriculture in the surrounding area. This conference was both enthusiastic and successful, and it will certainly have a far-reaching effect on the acceleration of the modernization of agriculture in the surrounding area.

After the breakup of the "gang of four," and particularly since the Third Plenary Session of the Central Committee, order has been brought out of chaos and development restored rapidly in the Shanghai's agricultural sciences. Scientific research organs and agricultural schools which had been dispersed have been restored, agricultural technicians who were forced to change occupations and not use what they had studied have returned to their units, and there have been rich accomplishments by both professional research units and in mass experimental activities. The whole agricultural science front is a flourishing scene of liberated thinking and great effort. Science and technology is productive force. The accomplishments of

agricultural science and technology have had a great effect on agricultural and subsidiary production in the surroundings of Shanghai and the development of a diversified economy. In the past few years, agriculture has developed rapidly in the outskirts of Shanghai. The unit yields and total production of grain, cotton, and rope are higher than ever, the production of subsidiary foods has risen by a wide margin year after year, and allocations to commune members increased by almost 100 yuan in each of the last 2 years. These enormous changes cannot be separated from the active efforts made by the agricultural science and technology personnel, and the hard work of the agricultural scientific workers is respected by the party and the people.

Experience has shown that the rapid recovery and development of agriculture in the surrounding area has depended principally on party policies. If we are to have any new breakthrough or development in agriculture in the future, we must depend more and more on the power of science and technology as well as continue to realize the party's various policies with regard to rural villages. Depend on policies, depend on science--this is the key to an accelerated development of agriculture in the outskirts. It can be seen that in the history of the development of agriculture in the outskirts in just the 30 years since the liberation, every step of the development of production and every leap in the amount produced is inseparable from a breakthrough in science or technology. Immediately following the liberation, unit yields of food grains in the outskirts were only 430 jin, in the fifties it exceeded the "target," in the sixties it exceeded 1,000 jin, and in the seventies it realized a doubling of the target, to more than 1,600 jin per mu. The most important subject facing us at present is how to advance production still further and reach a new level. As this is even more difficult, it cannot help but come from a scientific and technological breakthrough.

Not everyone recognizes the importance of science and technology or can resolve it. Some comrades, shackled by the thinking of a small producer's economy, do not take agricultural science seriously or give it a place in operation. Some feel agricultural work is nothing but "three hoes, six rakes, a coarse life, and awkward methods," with nothing scientific involved. Another way of saying it is: "Scientific research, scientific research, it can delay and it can procrastinate, so if it doesn't work this year, there's still next year." The thing these comrades have in common is that they all view present production as "cash" and scientific and technological work as a "check," so they look only at production and don't think about long-range development, casting scientific research to one side. At the recent agricultural science conference, through the revelation of examples in which the violation of science caused serious difficulties and the exchange of the experience of becoming aware of the benefits resulting from respect for science, many leading comrades came to see, from a distinct comparison, the necessity, importance, and urgency of science in accelerating the development of agriculture, and they established a correct viewpoint of "If agriculture is to improve, science must precede it." Many comrades revealed that they

wanted consciously to strengthen and improve the party committee's leadership of scientific and technical work and make agricultural scientific and technical work an important project for the party in the new period. Others said that agricultural scientific and technical work should be taken as seriously as the rural policies, and that scientific and technical work should be pursued as resolutely as the policies were implemented. We believe that with a good beginning like this, agricultural scientific and technical work will quickly produce a new situation in the outskirts.

The eighties will be a period of daily innovations and monthly changes in the agricultural science and technology throughout the world. Along with deepening research in genetic engineering, biological nitrogen fixation and the theory of photosynthesis, the gradual expansion of the application of satellite remote sensing, electronic computer technology, and artificial weather installations will reveal a magnificent future for agricultural modernization. The leading comrades of the Central Committee have demanded that the area surrounding Shanghai take the lead in agricultural modernization. The municipal party committee has demanded that the outskirts be made a base for stable production and high production of grain, cotton, and oil, as well as a base for subsidiary foodstuffs, the better quickly to make Shanghai into an important industrial, export, and scientific and technical base. If we are not to fail to live up to the eager hopes of the Central Committee and the municipal committee and raise our levels of service to the three bases, we must make new and higher demands on the scientific and technical work.

At present, there are some accomplishments in foodgrain, cotton, and oil production in the outskirts, but production is not stable, commonly rising and falling by large amounts, so how can this contradiction be resolved? For this, we must depend on science and develop comprehensive research on varieties, pruning and cultivation, climate, water conservancy, etc. Although the city is basically self-sufficient in vegetables, how can this supply be assured in the event of a windstorm, freeze, or disease? The modernization of vegetable production must also depend on science. To further satisfy the needs of the urban people for subsidiary foods like pork, poultry, eggs, milk, fish, etc., we must vigorously develop livestock production; but since there is presently a shortage of fodder, what can be done? We must depend on science, on scientific husbandry, and on scientific research to develop new sources of fodder that do not compete with the people's needs for grain. It should be mentioned that it would be very difficult to raise agricultural production in the outskirts another step and reach a new level on the existing foundation. However, if we just implement the various party policies correctly, give full respect to agricultural science, and soundly develop research in agricultural science, there is a great possibility of increasing agricultural production.

This conference determined the principal direction of attack and combat objectives for agricultural scientific and technical work in the outskirts for the eighties. Focusing on this direction and these targets, we must

formulate specific plans, carry out the necessary adjustments, concentrate our strength, make the key points stand out, and achieve a breakthrough as rapidly as possible in the service of agricultural production. At the same time, we must energetically strengthen the extension of existing scientific and technical results and convert them rapidly to actual productive force. At present, the work of spreading agricultural science and technology in the outskirts is very weak, and many technical results that have proved effective go for a long time without being spread throughout the commune where they are devised. We must conscientiously summarize the lessons of experience, raise higher the foundation of ideological understanding and, on the basis of our actual circumstances, formulate a plan and measures for the extension, according to local conditions, of the scientific and technical accomplishments for which the conference conferred awards. The battle of spring plowing has already begun, and the extension of scientific and technical accomplishments should be closely combined with present production. If the experience of the Yutang brigade is extended to early paddy production, the experience of the Xinguang brigade is extended in a down-to-earth manner to cotton production, the experience of Zhonggang team No 1 is extended in a down-to-earth manner to rape production, and the experience of Xinmin team No 6 on automatic generation of methane, etc., is extended in a down-to-earth manner as well, it will certainly have an enormous effect on overall production in agriculture, animal husbandry, forestry, subsidiary foods, and fisheries and in the struggle to secure a bumper harvest this year.

The first spring of the eighties is the spring of science. The task that has been placed before us is both glorious and formidable. Let us create outstanding accomplishments in our agricultural work, our scientific work, and in displaying our talents, to welcome the opening of the 12th Party Congress, and as an even greater contribution to the rapid realization of agricultural modernization in the outskirts.

9284

CSO: 4007

IDEAS FOR SELLING MORE GOATS PRESENTED

Beijing RENMIN RIBAO in Chinese 21 Jan 80 p 2

[Article by NCNA reporters Han Xiaofeng [7281 2556 1496], Xiao Zishu [5135 2737 2885] and Xu Minho [1776 3046 0735]: "Why Don't Goats Sell Here?"]

[Text] The counties of Wuqi, Wushan, Fengjie and Kaixian in the Wanxian Prefecture of Sichuan are located in a mountainous area, which is one of the nation's major goat areas. In the past few years, the leadership at various levels have exerted great efforts in goat production and the number of goats on hand has increased greatly. By the end of September of last year, in the Wanxian Prefecture there were 1.09 million goats, an increase of 14 percent over the same period of the previous year.

Goat-raising has developed very fast, but the goats cannot be sold. The Wuqi Food Company bought over 1,000 but because it could neither sell them nor ship them out, it had to spend over 20 yuan a day to hire people to graze them in the hills. By the end of November of last year, Wuqi County had bought approximately 10,680 goats, but over 3,000 of them could not be sold. Thus the food company decided to stop buying them for a while.

Why don't goats sell? According to comrades in the commercial offices, there is a market for goat hides, but none for goat meat. On the first of last November, the selling price of goat meat was raised across the nation, but here it has maintained its original price, nevertheless it is still unsaleable, and internal organs and heads of goats are sold at our rates. Shipping to other areas is inconvenient and expensive, and commercial offices' losses are high.

How can this production and marketing contradiction in a developed goat-raising industry be resolved? We discussed the matter with comrades from the commercial and supply and marketing offices of Wuqi County. They think the best solution is to establish cold storage warehouses and build mountain highways, but the economy at present is not up to this for the time being. To resolve the production and marketing contradiction rapidly, they propose that the foreign trade offices raise the purchase price of goat hides. Comrades from the commercial office have calculated that if the purchase price of goat hides is

raised 1 yuan, commune members can earn more than 4 yuan just by selling the hide, of a goat weighing 40 jin gross weight, and at the same time getting the remaining 16 jin of goat meat. Thus the commune members would be willing to slaughter the goats themselves. The foreign trade departments would still make a profit and could increase the export of goat hides, and though the profit margin would be small, through increased sales they could earn more foreign exchange.

8226

CSO: 4007

BRIEFS

INSECT PEST ELIMINATION--In 1979, 12 million mu of farmland in Sichuan was protected against insect pests by biological means. The biological means are used to prevent insect pests from damaging rice, maize, cotton, vegetables, fruits and tea in 100 counties in the basin areas of the province. The biological means are almost 90 percent effective. In Jianyang, Pingchang, Shehong and Jintang counties the biological methods are used to prevent cotton bollworms and cabbage caterpillars over an area of 3,500 mu. The effects of prevention are up to 80 percent. [Chengdu Sichuan Provincial Service in Mandarin 2310 GMT 22 Mar 80 HK]

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ZHEJIANG

BRIEFS

TAIZHOU PREFECTURE PIGSKIN PRODUCTION--Taizhou Prefecture, Zhejiang, bought some 950,000 pigs from pig breeders and produced about 460,000 pieces of pigskin in 1979. Pigskin leather products produced in the prefecture in 1979 were valued at 10.73 million yuan. [Hangzhou Zhejiang Provincial Service in Mandarin 1100 GMT 9 Apr 80 OW]

CROP DISEASE--Incessant rains since the beginning of March has affected 7 percent of the wheat and barley crops in Ninghai County, Zhejiang, with the disease of cereal scab. Some 35,000 people in the county are now fighting the disease each day with some 33,000 jin of insecticides and 80 mechanized sprayers. Efforts are being made also to drain excess water from the county's 100,000 mu of spring crops. [Hangzhou Zhejiang Provincial Service in Mandarin 0400 GMT 13 Apr 80 OW]

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